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Auger et al.

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(54) **SOLE STRUCTURE WITH EXTENDABLE CLEAT**

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A43C 15/14 (2006.01)
A43C 15/16 (2006.01)

(52) **U.S. Cl.**
CPC ***A43C 15/14*** (2013.01); ***A43C 15/168*** (2013.01)

(58) **Field of Classification Search**
CPC A43C 13/04; A43C 15/005; A43C 15/16; A43C 15/161; A43C 15/165; A43C 15/167; A43B 13/26; A43B 5/02
See application file for complete search history.

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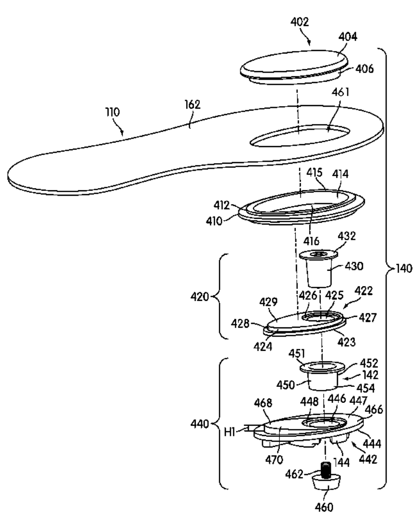
(57) **ABSTRACT**

A sole structure including a cleat assembly is disclosed. The cleat assembly includes a covering member, an actuating assembly and a cleat sub-assembly. The cleat sub-assembly includes a cleat member that can extend in length under a force applied by a foot. The actuating assembly directs force applied by a foot at the covering member to the cleat member so that the cleat can extend and penetrate further into a ground surface. The actuating assembly can include a pivot plate that pivots about an angled portion of the cleat sub-assembly.

31 Claims, 15 Drawing Sheets



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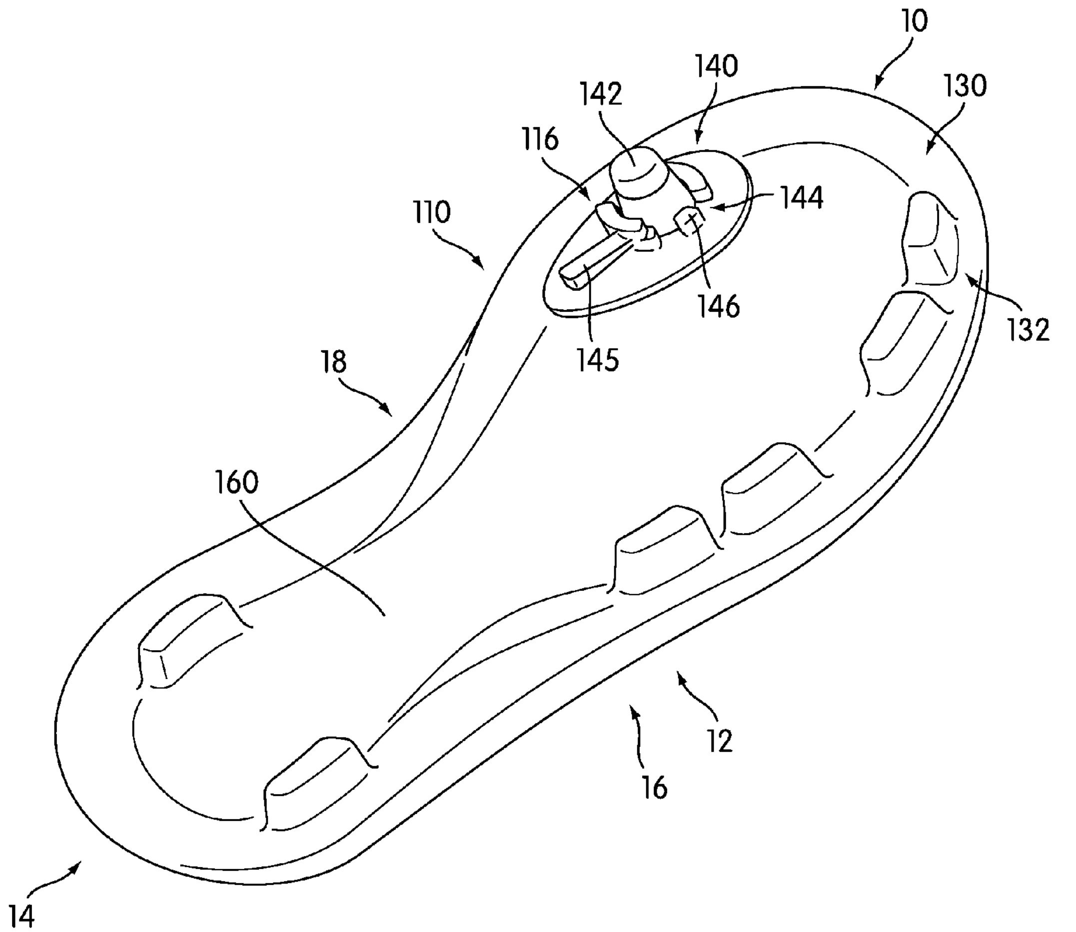


FIG. 1

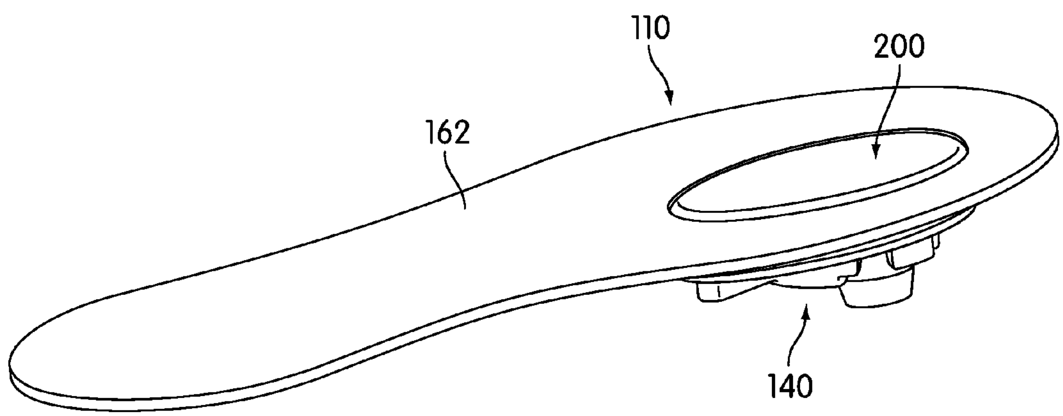


FIG. 2

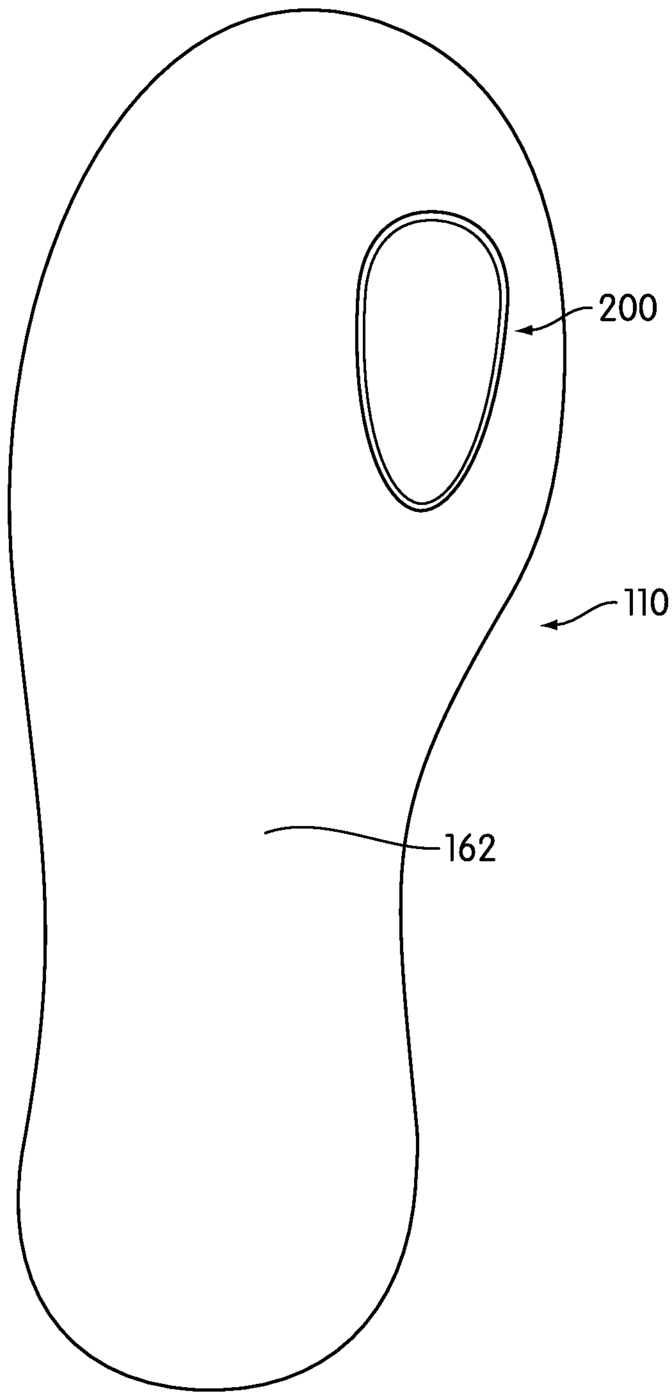
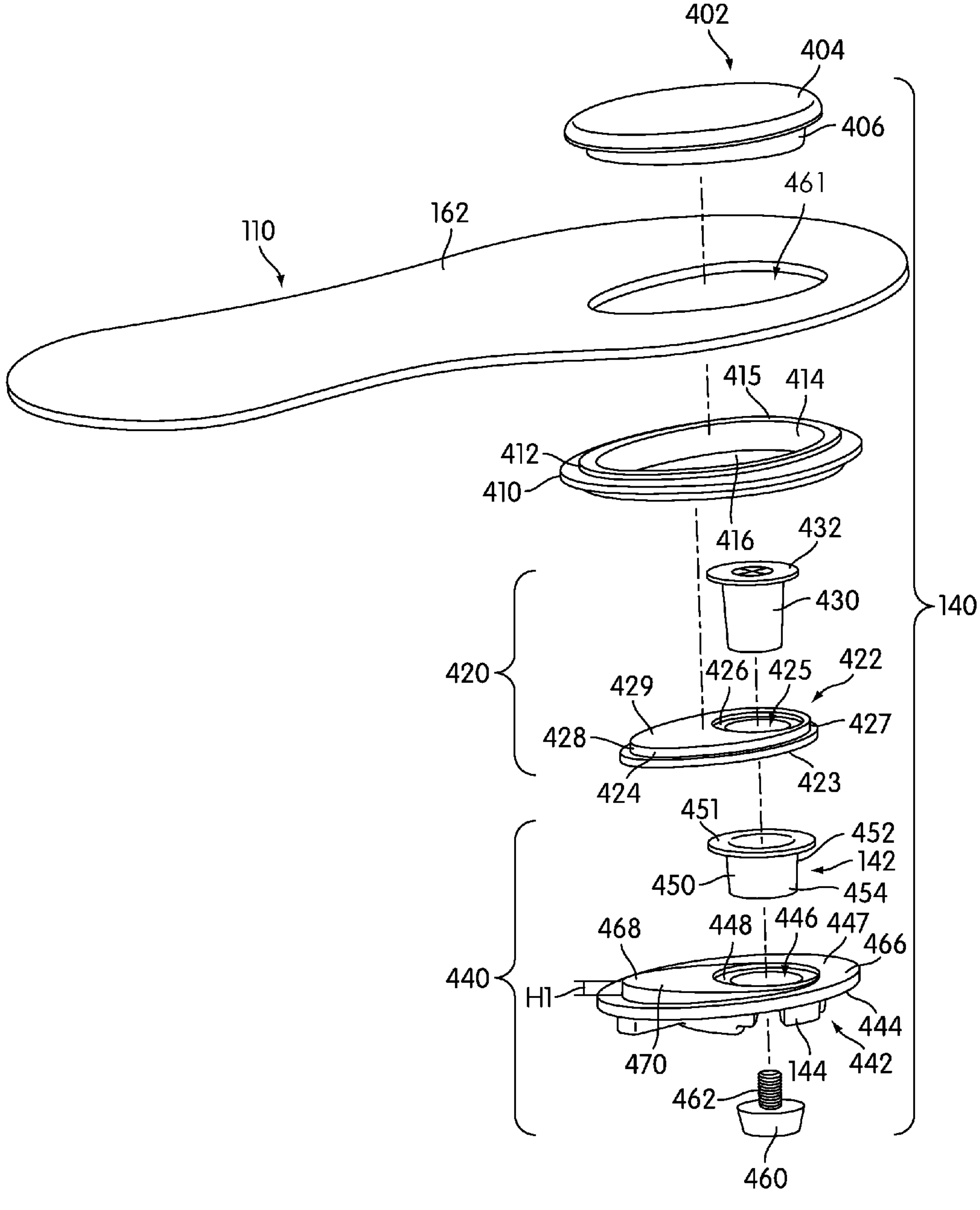


FIG. 3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H1
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470
144
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FIG. 4

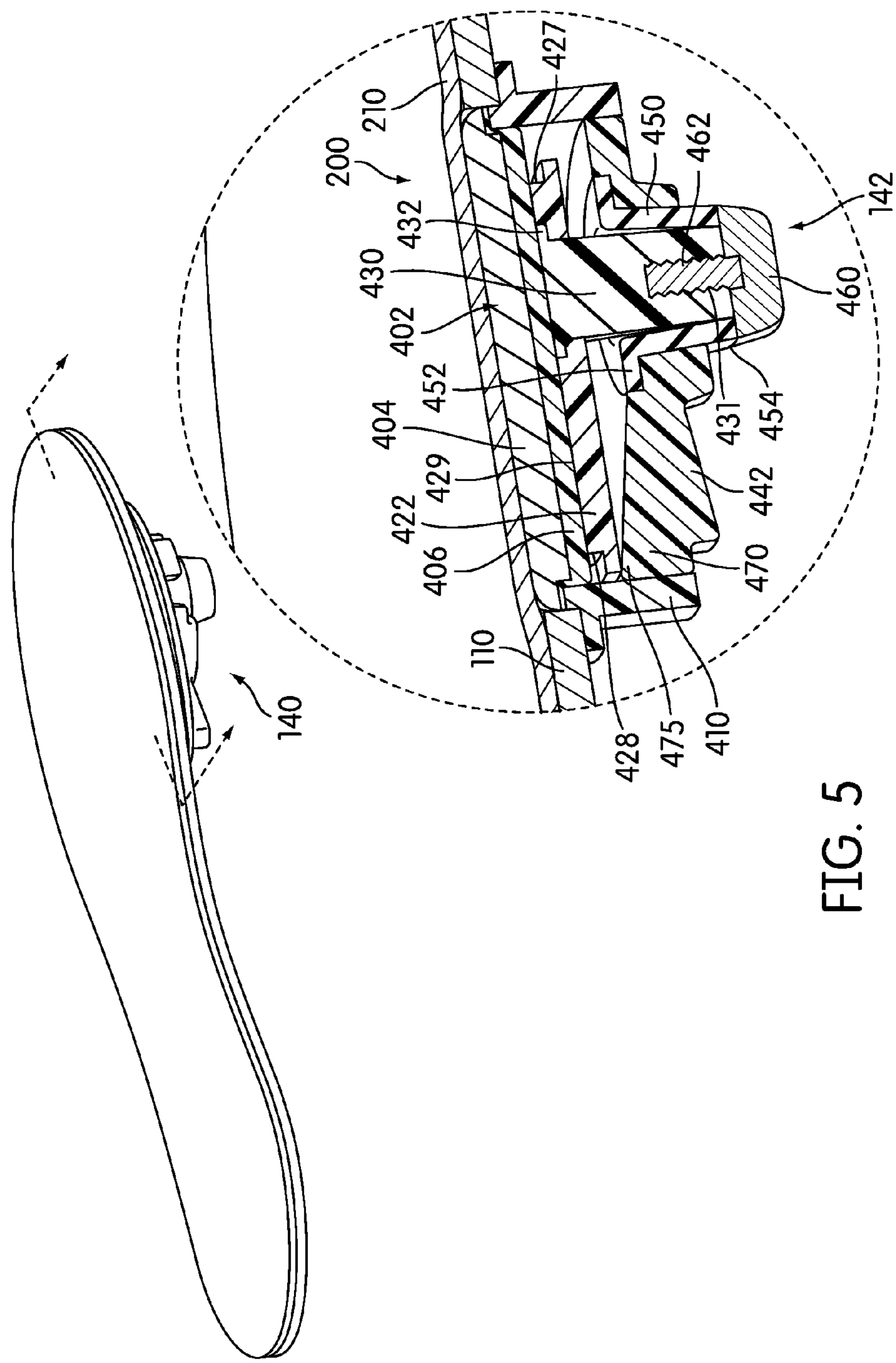
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FIG. 5

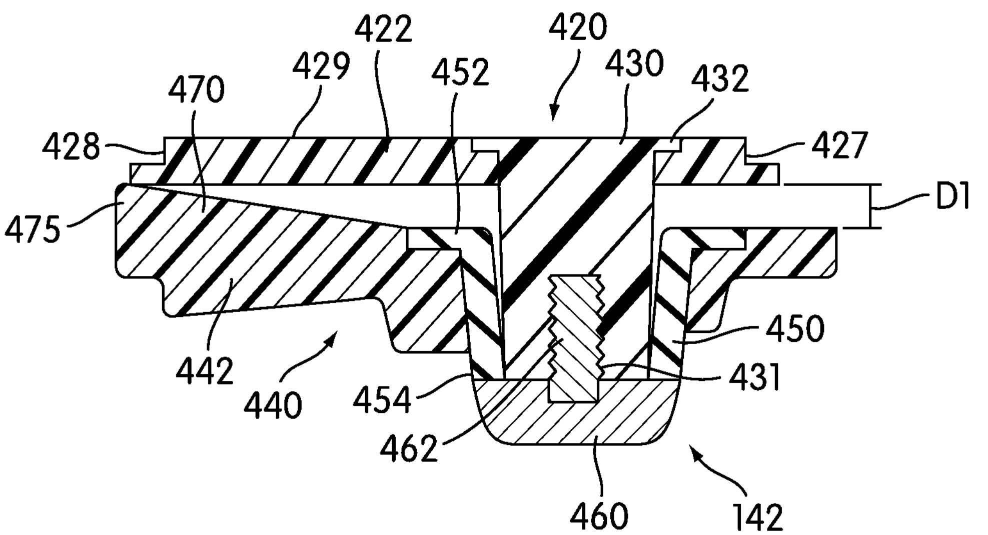
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FIG. 6

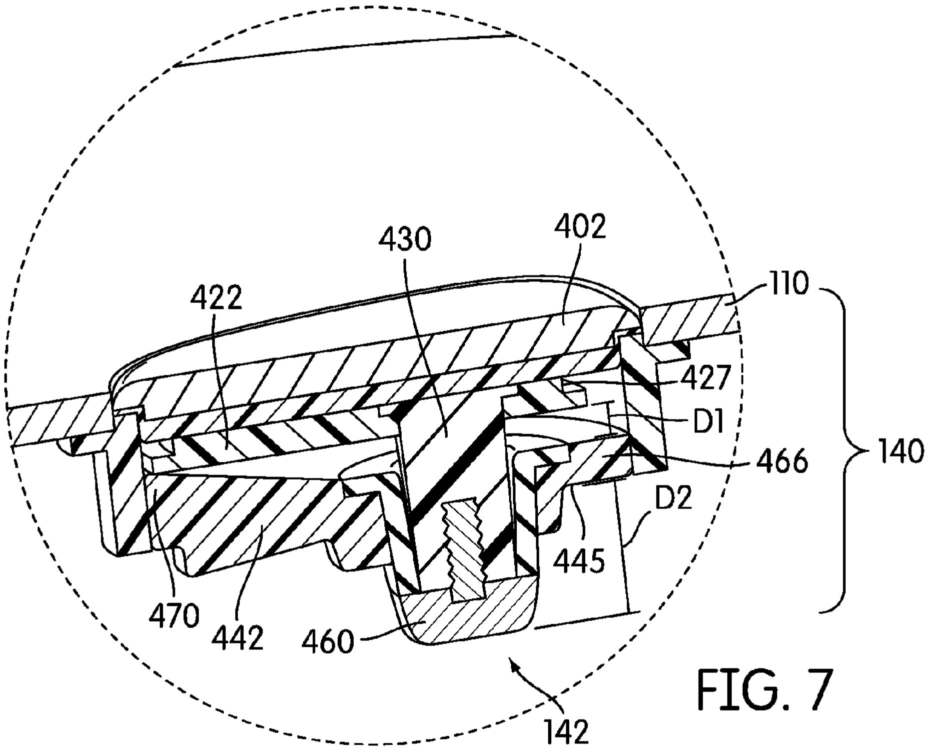

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FIG. 7

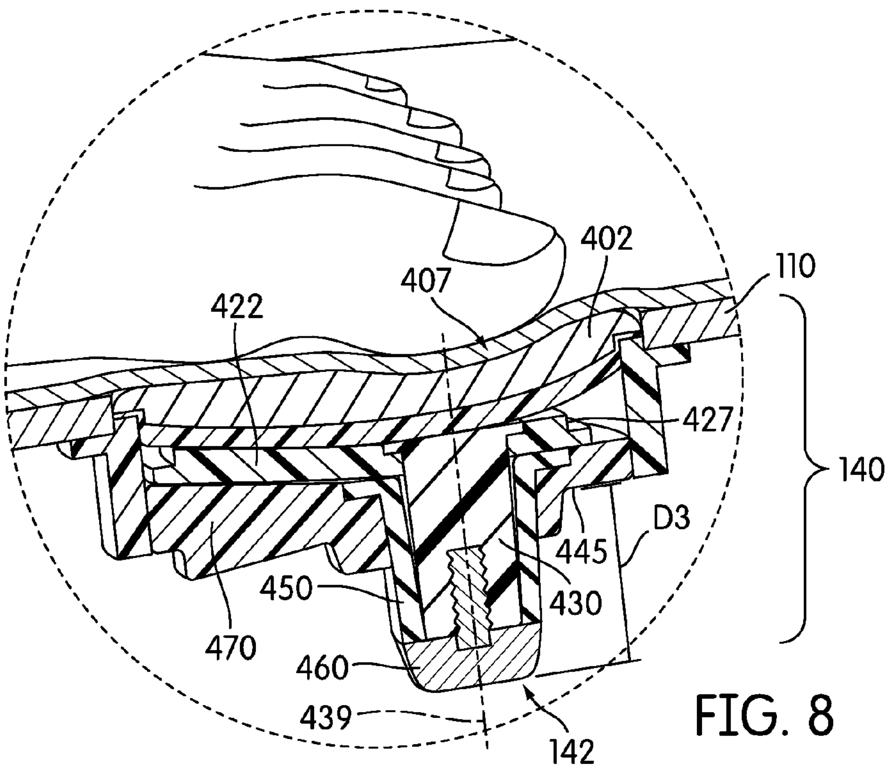

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FIG. 8

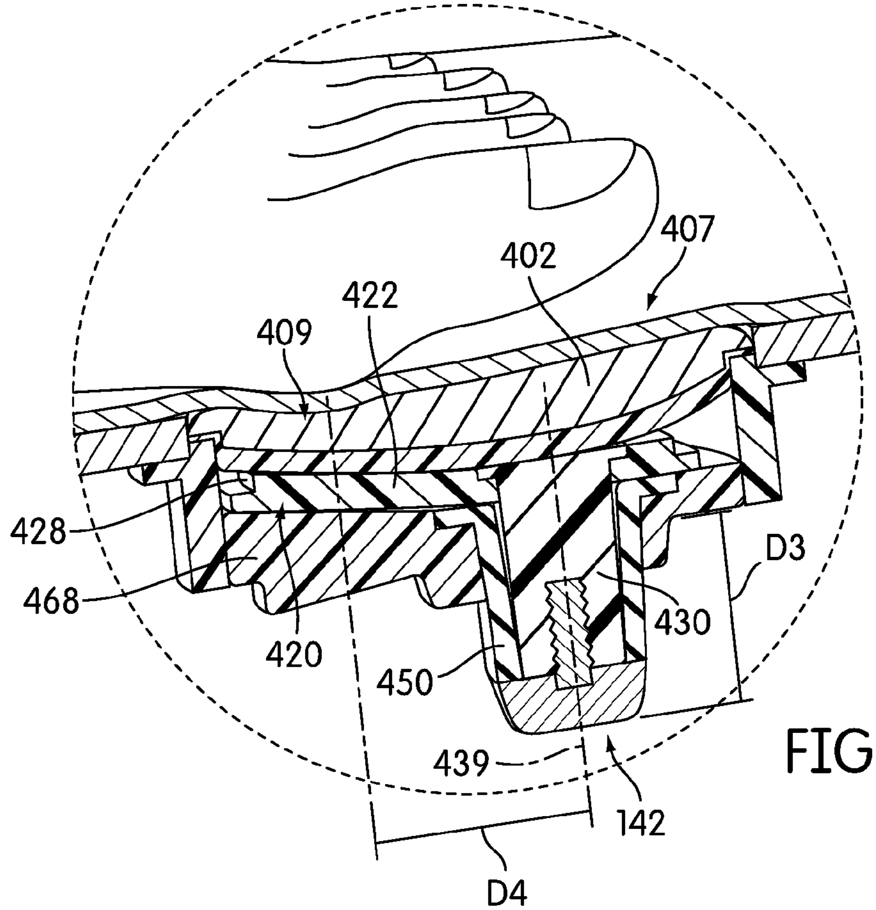
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FIG. 9

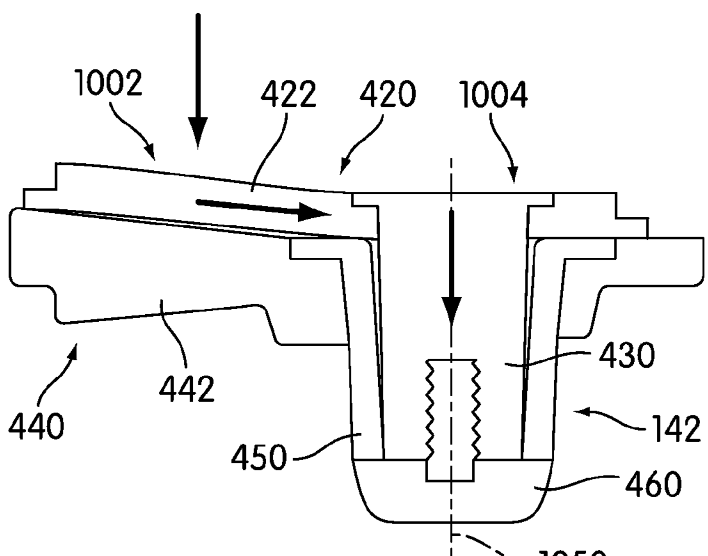
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FIG. 10

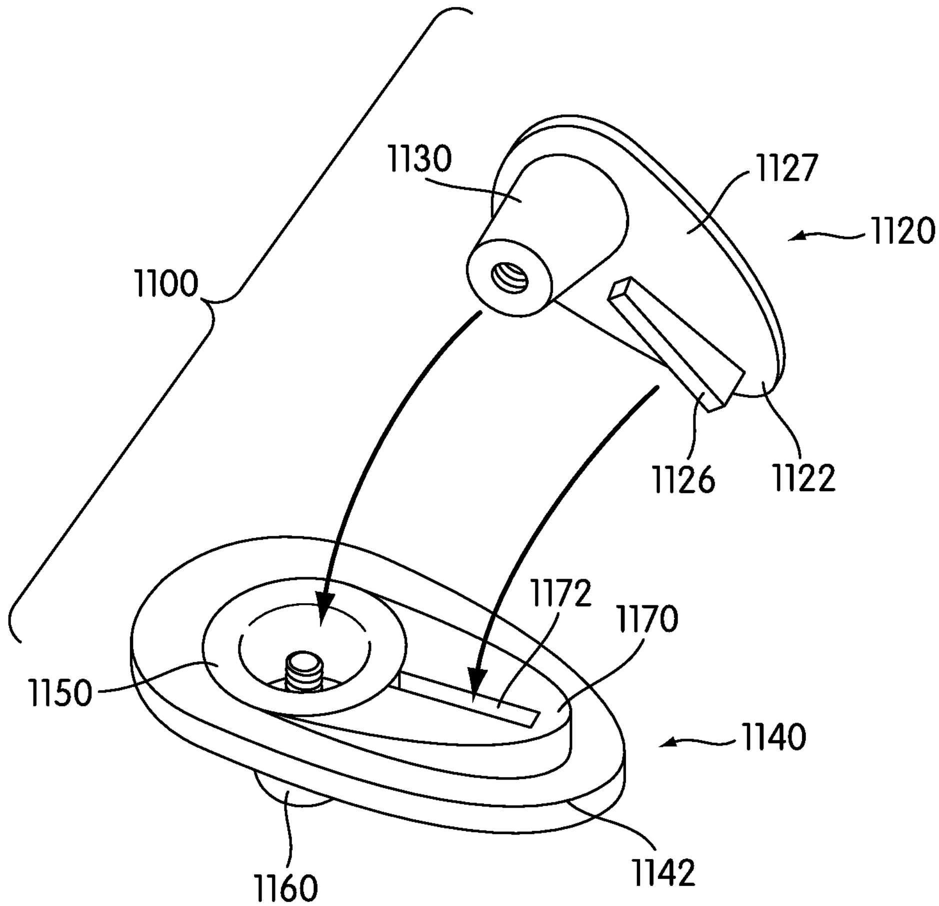

FIG. 11

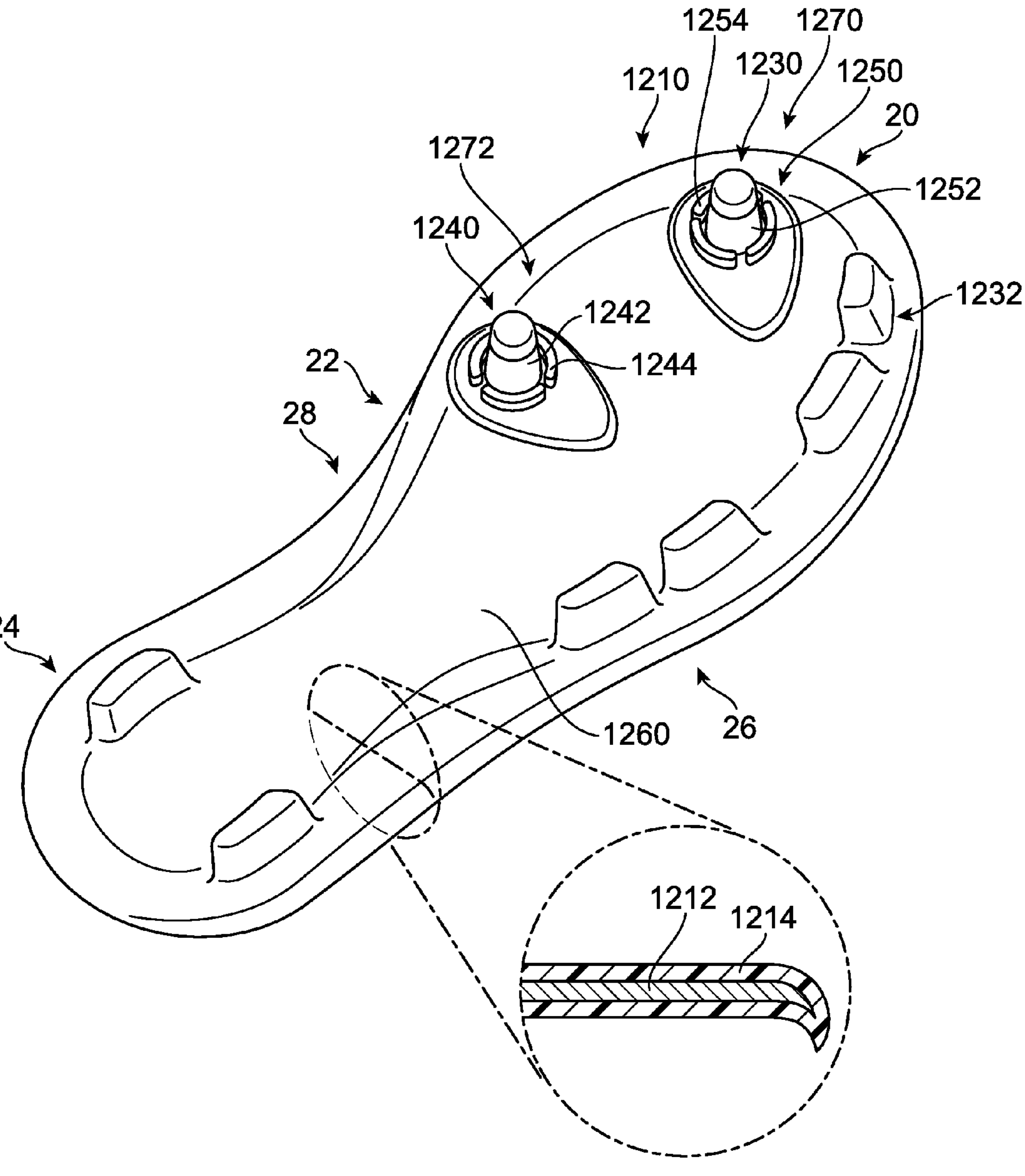
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FIG. 12

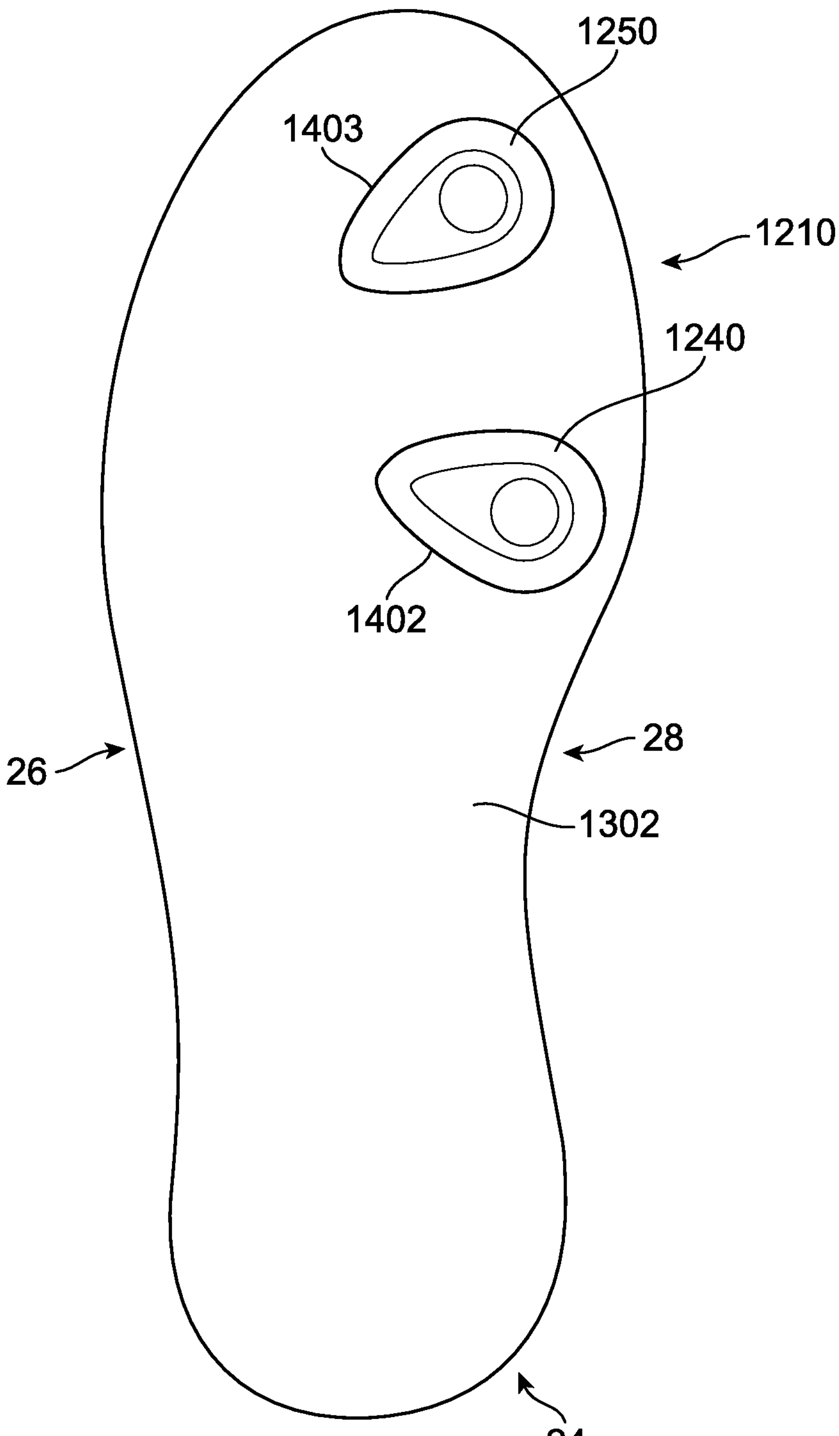

FIG. 13

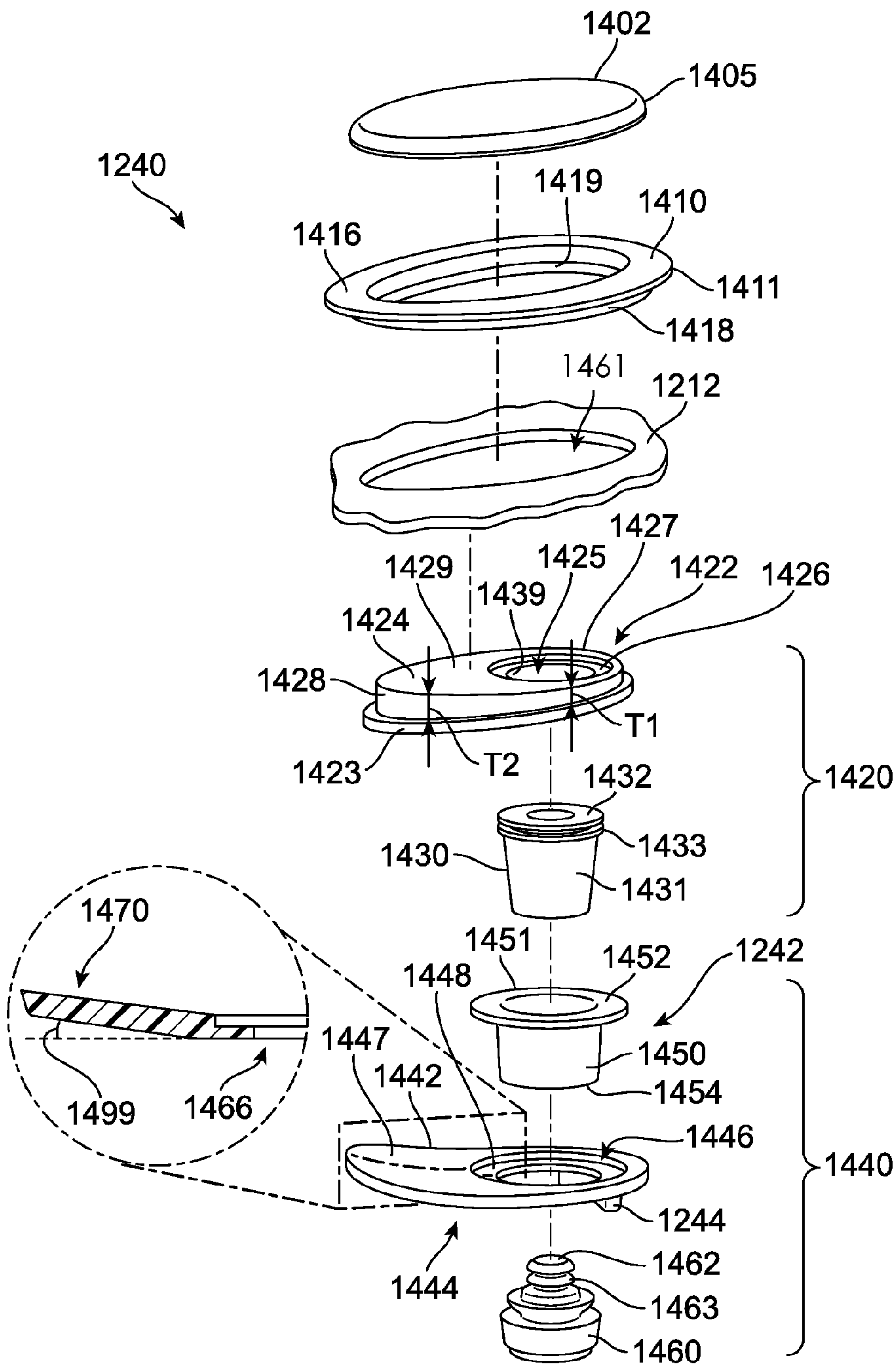
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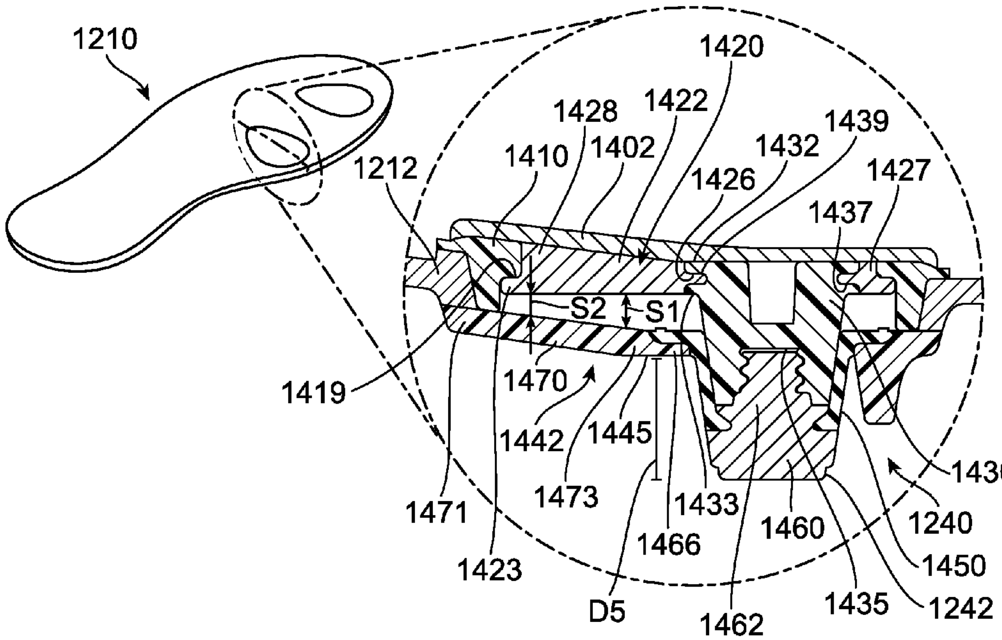
FIG. 14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1442
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D5
1462

FIG. 15

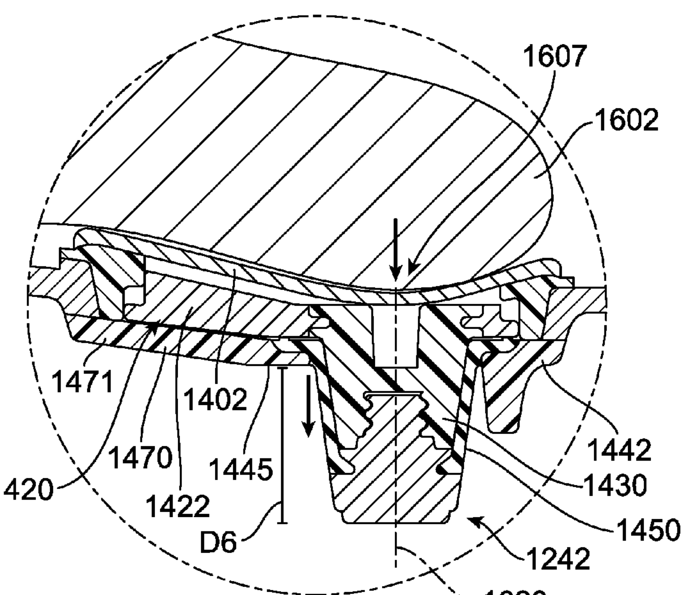
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FIG. 16

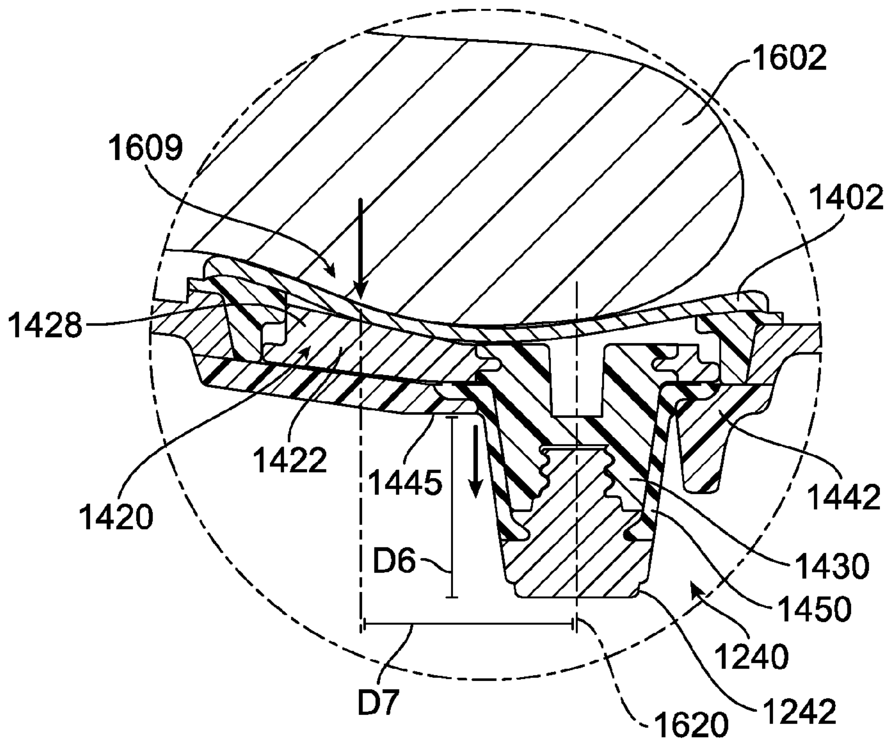
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FIG. 17

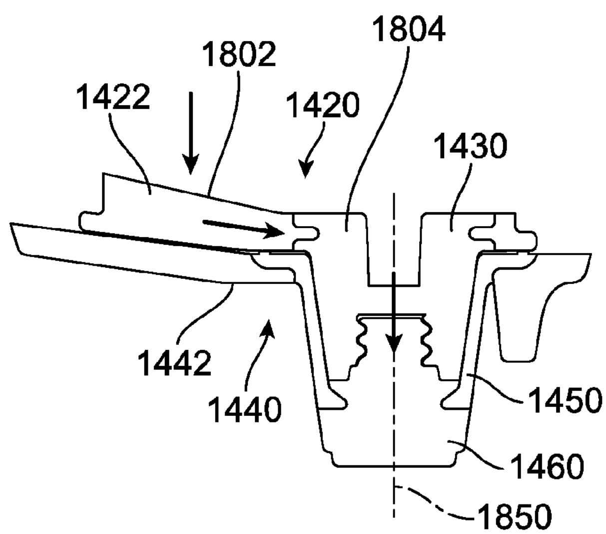
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FIG. 18

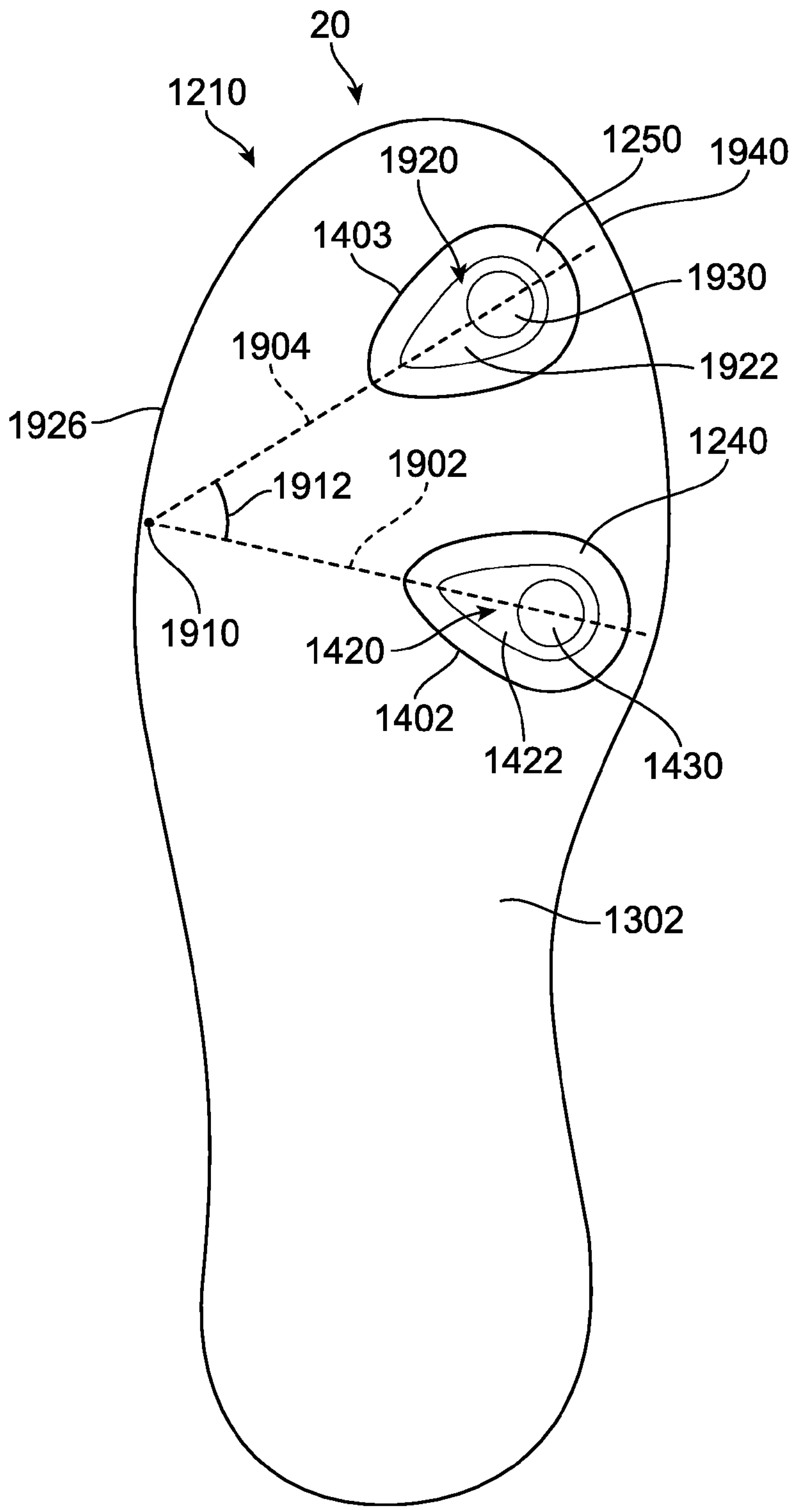
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FIG. 19

SOLE STRUCTURE WITH EXTENDABLE CLEAT

This application is a continuation in part of U.S. Pat. No. 8,453,349, the entirety of which is incorporated by reference.

BACKGROUND

The present embodiments relate generally to articles of footwear, and in particular to articles of footwear with extendable cleats.

Articles of footwear generally include an upper and a sole. The sole can further include a midsole and/or outsole. The upper helps to keep the sole fastened to the foot and generally provides protection for the foot. The sole can provide various kinds of support, cushioning and shock absorption.

SUMMARY

In one aspect, a sole structure for article of footwear including a cleat assembly includes a cleat member with an extending portion, where the extending portion has a first end fixed relative to the sole structure. The cleat assembly also includes an actuating assembly with a pivot plate and an actuating member. The pivot plate has a first end portion and a second end portion and the actuating member is attached to the first end portion. The actuating member disposed within the extending portion and positioned to transfer force from a foot of the wearer to a second end of the extending portion. The pivot plate assembly is configured to pivot about the second end portion of the pivot plate.

In another aspect, a sole structure for an article of footwear with a cleat assembly includes a cleat sub-assembly comprising a base portion and a cleat member attached to the base portion. The base portion includes an angled portion. The cleat member includes an extending portion, where the extending portion has a first end attached to the base portion. The cleat assembly also includes an actuating assembly with a pivot plate and an actuating member attached to the pivot plate. The actuating member is disposed within the extending portion and positioned to transfer force from a foot of the wearer to a second end of the extending portion. The angled portion comprises a fulcrum for the pivot plate.

In another aspect, a sole structure for an article of footwear with a cleat assembly includes an actuating assembly with a pivot plate and an actuating member, where the pivot plate has a first end portion and a second end portion and where the actuating member is disposed adjacent to the first end portion. The cleat assembly also includes a covering member with a first region and a second region, where the first region is disposed adjacent to the first end portion of the pivot plate and the second region is disposed adjacent to the second end portion of the pivot plate. The cleat assembly further includes a cleat sub-assembly with a base portion and a cleat member. The base portion includes a hole for receiving the cleat member and an angled portion that is configured to contact the second end portion of the pivot plate. The cleat member is configured to receive the actuating member and the cleat member can be extended away from the sole structure by the actuating member. The cleat assembly is configured to transfer force from the first region of the covering member to the actuating member and the cleat assembly is configured to transfer force from the second region of the covering member to the actuating member.

In another aspect, a sole structure for an article of footwear includes a first cleat assembly and a second cleat assembly. The first cleat assembly includes a first actuating assembly and a first cleat member. The second cleat assembly includes a second actuating assembly and a second cleat member. The cleat assembly is further associated with a first axis that is associated with a first length of the first cleat assembly and a second axis that is associated with a second length of the second cleat assembly. The first cleat assembly and the second cleat assembly are arranged on the sole structure so that the first axis is angled with respect to the second axis.

Other systems, methods, features and advantages of the embodiments will be, or will become, apparent to one of ordinary skill in the art upon examination of the following figures and detailed description. It is intended that all such additional systems, methods, features and advantages be included within this description and this summary, be within the scope of the embodiments, and be protected by the following claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The embodiments can be better understood with reference to the following drawings and description. The components in the figures are not necessarily to scale, emphasis instead being placed upon illustrating the principles of the embodiments. Moreover, in the figures, like reference numerals designate corresponding parts throughout the different views.

FIG. **1** is an isometric view of a bottom surface of an embodiment of a sole structure including a cleat assembly;

FIG. **2** is an isometric view of a top surface of an embodiment of a sole structure including a cleat assembly;

FIG. **3** is a top down view of an embodiment of a sole structure;

FIG. **4** is an exploded isometric view of a cleat assembly with a sole structure;

FIG. **5** is an exploded cut-away view of an embodiment of a cleat assembly;

FIG. **6** is an isolated cross sectional view of an embodiment of an actuating assembly and a cleat sub-assembly;

FIG. **7** is an isometric cut-away view of an embodiment of a cleat assembly;

FIG. **8** is an isometric cut-away view of an embodiment of a cleat assembly in an extended position;

FIG. **9** is an isometric cut-away view of an embodiment of a cleat assembly in an extended position;

FIG. **10** is a schematic cross-sectional view of an embodiment of an actuating assembly and a cleat sub-assembly;

FIG. **11** is an isometric view of an alternative embodiment of a cleat assembly;

FIG. **12** is a bottom isometric view of an embodiment of a sole structure including two cleat assemblies with extendable cleats;

FIG. **13** is a top down view of an embodiment of a sole structure including two cleat assemblies;

FIG. **14** is an exploded isometric view of an embodiment of a cleat assembly;

FIG. **15** is a side cross sectional view of an embodiment of a cleat assembly in a non-extended position;

FIG. **16** is a side cross sectional view of an embodiment of a cleat assembly in an extended position;

FIG. **17** is a side cross sectional view of an embodiment of a cleat assembly in an extended position;

FIG. **18** is a schematic view of an embodiment of an actuating assembly directing an off axis force to a cleat member; and

FIG. **19** is a top down view of an embodiment of a sole structure showing the relative orientation of two different cleat assemblies.

DETAILED DESCRIPTION

FIG. **1** illustrates a bottom isometric view of an embodiment of sole structure **110** configured for use with an article of footwear. For clarity, the following detailed description discusses an exemplary embodiment, in the form of a sole structure for a sports shoe, but it should be noted that the present embodiments could take the form of a sole structure for any article of footwear including, but not limited to: hiking boots, soccer shoes, football shoes, sneakers, rugby shoes, basketball shoes, baseball shoes as well as other kinds of shoes.

For purposes of reference, components of sole structure **110** may be divided into forefoot portion **10**, midfoot portion **12** and heel portion **14**. Forefoot portion **10** may be generally associated with the toes and joints connecting the metatarsals with the phalanges. Midfoot portion **12** may be generally associated with the arch of a foot. Likewise, heel portion **14** may be generally associated with the heel of a foot, including the calcaneus bone. In addition, sole structure **110** may include lateral side **16** and medial side **18**. In particular, lateral side **16** and medial side **18** may be opposing sides of sole structure **110**. Furthermore, both lateral side **16** and medial side **18** may extend through forefoot portion **10**, midfoot portion **12** and heel portion **14**.

It will be understood that forefoot portion **10**, midfoot portion **12** and heel portion **14** are only intended for purposes of description and are not intended to demarcate precise regions of sole structure **110**. Likewise, lateral side **16** and medial side **18** are intended to represent generally two sides of a sole structure, rather than precisely demarcating sole structure **110** into two halves. In addition, forefoot portion **10**, midfoot portion **12** and heel portion **14**, as well as lateral side **16** and medial side **18**, can also be applied to individual components of a sole structure, such as a sockliner, insole or any other component.

For consistency and convenience, directional adjectives are employed throughout this detailed description corresponding to the illustrated embodiments. The term "longitudinal" as used throughout this detailed description and in the claims refers to a direction extending a length of a component. In some cases, the longitudinal direction may extend from a forefoot portion to a heel portion of the sole structure. Also, the term "lateral" as used throughout this detailed description and in the claims refers to a direction extending a width of the sole structure. In other words, the lateral direction may extend between a medial side and a lateral side of the sole structure. Furthermore, the term "vertical" as used throughout this detailed description and in the claims refers to a direction generally perpendicular to a lateral and longitudinal direction. For example, in cases where a sole structure is planted flat on a ground surface, the vertical direction may extend from the ground surface upward. In addition, the term "proximal" refers to a portion of a footwear component that is closer to a portion of a foot when an article of footwear is worn. Likewise, the term "distal" refers to a portion of a footwear component that is further from a portion of a foot when an article of footwear is worn. It will be understood that each of these directional adjectives may be applied to individual components of an article and/or a sole structure.

In some embodiments, sole structure **110** may be joined with an upper. The upper could be configured with any design, shape, size and/or color. In other cases, however, sole structure **110** may not be attached to an upper.

In some embodiments, sole structure **110** may be configured to provide traction for an article of footwear. In addition to providing traction, sole structure **110** may attenuate ground reaction forces when compressed between the foot and the ground during walking, running or other ambulatory activities. The configuration of sole structure **110** may vary significantly in different embodiments to include a variety of conventional or non-conventional structures. In some cases, the configuration of sole structure **110** can be configured according to one or more types of ground surfaces on which sole structure **110** may be used. Examples of ground surfaces include, but are not limited to: natural turf, synthetic turf, dirt, as well as other surfaces.

In different embodiments, sole structure **110** may include different components. For example, sole structure **110** may include an outsole, a midsole, and/or an insole. In some cases, one or more of these components may be optional. In some cases, sole structure **110** comprises a substantially rigid chassis that provides support and durability for an article. In one embodiment, sole structure **110** may comprise an outsole or lower layer for the sole of a shoe and could be incorporated with a separate midsole (not shown) and/or insole.

Sole structure **110** can include cleat system **130** that comprises one or more cleat members. The term "cleat" or "cleat member" as used throughout this detailed description and in the claims refers to a member or element that is configured to increase traction with a ground surface. A cleat member may be configured to penetrate into a ground surface in order to facilitate traction, stability and/or control for a user.

In some cases, cleat system **130** includes plurality of cleats **132** disposed on lower surface **160** of sole structure **110**. Plurality of cleats **132** may comprise any type of cleats disposed in any portion of sole structure **110**. For example, in some cases, plurality of cleats **132** includes four cleats disposed in forefoot portion **10** and two cleats disposed in heel portion **14** of sole structure **110**. In other cases, however, any other number and/or arrangement of cleats is possible. Moreover, in different embodiments the shape and/or size of cleats could vary.

In some cases, plurality of cleats **132** comprises cleats with an approximately ridge-like shape. However, in other embodiments, any other shape for plurality of cleats **132** is possible. In some other embodiments, different cleats of plurality of cleats **132** could have substantially different shapes in order to provide different amounts of traction over different portions of sole structure **110**.

Cleat system **130** can also include cleat assembly **140**. Cleat assembly **140** comprises cleat member **142**. In some cases, cleat member **142** is an extendable cleat that is configured to penetrate further into a ground surface following actuation of some kind. In contrast to plurality of cleats **132**, which are fixed in place with respect to sole structure **110**, cleat member **142** is capable of extending further outwardly from sole structure **110** in order to provide enhanced traction and control for a user. The operation of cleat assembly **140**, including the extension of cleat member **142**, is described in detail below.

In some cases, cleat assembly **140** can also include projections **144** that are part of cleat assembly **140**. Projections **144** may be fixed in place with respect to sole structure **110** in order to provide stability for the actuation of cleat member **142**. Primary projection **145** may be a wedge-like projection that extends outwardly from cleat member **142**. Additionally, secondary projections **146** may partially encircle cleat member **142**. In other embodiments, any other number and/or shape of projections could be used with cleat assembly **140**.

Examples of articles of footwear with extendable traction elements are disclosed in Auger, U.S. Pat. No. 8,453,349, the entirety of which is hereby incorporated by reference.

In different embodiments, the approximate location of a cleat assembly with an extendable cleat member could be varied. For example, in some cases, one or more cleat assemblies could be disposed in forefoot portion **10** of sole structure **110**. In other cases, one or more cleat assemblies could be disposed in midfoot portion **12** and/or heel portion **14** of sole structure **110**. For purposes of illustration, sole structure **110** is shown with a single cleat assembly **140** disposed in region **116** of sole structure **110**. In some cases, region **116** may correspond to the approximate location of the ball of the foot. In other cases, region **116** may correspond to the approximate location of the big toe of the foot. In still other cases, region **116** could correspond to a region located between the ball of the foot and the big toe of the foot. Moreover, in other embodiments, region **116** could be associated with any other portion of sole structure **110**. The location of a cleat assembly with an extendable cleat may be selected to correspond to a region where downward force is applied by a foot during various kinds of motion such as running and/or cutting.

Although a single cleat assembly is shown in the current embodiment, other embodiments could include additional cleat assemblies at various different locations on sole structure **110**. For example, in another embodiment, a first cleat assembly could be disposed on a region of the sole structure corresponding to the ball of the foot and a second cleat assembly could be disposed on a region of the sole structure corresponding to the big toe of the foot.

FIGS. **2** and **3** illustrate an isometric view and top down view, respectively, of an upper surface **162** of sole structure **110**. Upper surface **162** is a surface that is configured to face inwardly when sole structure **110** is attached to an upper. In particular, upper surface **162** is located proximally to lower surface **160** (see FIG. **1**) and therefore may be adjacent to a foot when an article incorporating sole structure **110** is worn.

Referring to FIGS. **2** and **3**, sole structure **110** can include actuating zone **200**. Actuating zone **200** comprises a region of upper surface **162** where force can be applied to actuate cleat assembly **140**. Generally, actuating zone **200** may be disposed over cleat assembly **140** so that a force applied to actuating zone **200** can be transferred directly to cleat assembly **140**. In other cases, however, actuating zone **200** could be located on a different portion of sole structure **110** than cleat assembly **140**.

FIG. **4** illustrates an isometric exploded view of cleat assembly **140**. Cleat assembly **140** may comprise covering member **402**, housing **410**, actuating assembly **420** and cleat sub-assembly **440**. In some cases, housing **410** may be mounted directly to one or more portions of sole structure **110**. For example, in the current embodiment, outer rim **412** of housing **410** may insert into gap **461** of sole structure **110**. Interior rim **414** of housing **410** may further receive covering member **402** from above. In addition, housing **410** receives actuating assembly **420** and cleat sub-assembly **440**, in order to secure actuating assembly **420** and cleat sub-assembly **440** to sole structure **110**.

In some cases, interior rim **414** can taper from upper portion **415** to lower portion **416**. In other words, the cross-sectional area of interior rim **414** may decrease from upper portion **415** to lower portion **416**. In some embodiments, interior rim **414** can be sized so that components of actuating assembly **420** and/or cleat sub-assembly **440** may fit through upper portion **415** but not lower portion **416**. This arrangement can help secure these components within housing **410**. In other cases, however, interior rim **414** may not be tapered and could have a substantially constant cross-sectional area from upper portion **415** to lower portion **416**.

Covering member **402** may extend through gap **461** of sole structure **110** and into housing **410**. In some cases, covering member **402** includes first portion **404** that provides a substantially soft or elastic surface that may deform slightly under an applied force. In addition, covering member **404** may include second portion **406** that is configured to contact actuating assembly **420**. With this arrangement, covering member **402** may provide a mechanism for transferring force between a wearer's foot and actuating assembly **420**. In addition, covering member **402** acts to cover the various components of cleat assembly **140** in order to maintain a generally smooth upper surface **162** for sole structure **110**.

Actuating assembly **420** can further include pivot plate **422** and actuating member **430**. Pivot plate **422** may include a first portion **423** and a second portion **424** that is raised up from first portion **423**. In some cases, the cross-sectional area of second portion **424** may be slightly less than the cross-sectional area of first portion **423**. Second portion **424** may be configured to contact second portion **406** of covering member **402**. In some cases, second portion **424** of pivot plate **422** and second portion **406** of covering member **402** can have substantially similar cross-sectional areas and/or cross-sectional shapes in order to help maximize the transfer of forces from covering member **402** to actuating assembly **420**.

Pivot plate **422** also includes first end portion **427** and second end portion **428**. First end portion **427** may include hole **425**. In some cases, hole **425** is a substantially rounded hole that is configured to receive actuating member **430**. Moreover, in some cases, hole **425** may be further associated with recessed portion **426** that receives flange **432** of actuating member **430**. This allows actuating member **430** to attach to pivot plate **422** so that actuating member **430** is substantially flush with upper surface **429** of pivot plate **422**.

In some cases, actuating member **430** can be fixedly secured to pivot plate **422**. In other cases, however, actuating member **430** may not be secured to pivot plate **422** and may be configured to freely rotate within hole **425**. This arrangement allows actuating member **430** to be fastened to a component of cleat sub-assembly **440**, as discussed in detail below.

Cleat sub-assembly **440** can include base portion **442** as well as cleat member **142**. Cleat member **142** includes extending portion **450** (also referred to as an elastic member) and tip portion **460**. Extending portion **450** can include first end **452** and second end **454**. In some cases, tip portion **460** is joined with second end **454**.

Cleat sub-assembly **440** can include provisions for engaging with actuating member **430**. In some cases, tip portion **460** includes fastening portion **462** that is configured to engage actuating member **430**. In some cases, fastening portion **462** could be a threaded post. In other cases, however, fastening portion **462** could incorporate any other kind of fastening mechanism. In still other cases, tip portion **460** may not fasten to actuating member **430**.

In some embodiments, extending portion **450** may be a substantially flexible portion that can extend and/or stretch under an applied force. In some cases, tip portion **460** may comprise a substantially rigid portion that is more rigid than extending portion **450**. As extending portion **450** stretches or extends, so that first end **452** is displaced further from second end **454**, tip portion **460** may also extend away from first end portion **452**. In other cases, tip portion **460** could also be made of a substantially elastic material and may partially deform under an applied force.

Base portion **442** includes projections **144** on lower side **444** that have already been discussed and shown in FIG. **1**. Projections **144** can help increase traction and provide additional balance while cleat member **142** is engaged with a ground surface. Base portion **442** may also include hole **446** on first end portion **466** that receives extending portion **450**.

In some cases, hole **446** is further associated with recessed portion **448** that may receive flange **451** of extending portion **450**.

Base portion **442** can also include ramp portion **470** on upper side **447** of base portion **442**. Ramp portion **470** rises from hole **446** towards second end portion **468** of base portion **442**. In different embodiments, the height H**1** of ramp portion **470** can vary. In some cases, height H**1** can have a value in the range between 0 and 3 millimeters. In other cases, height H**1** can have a value in the range between 0 and 5 millimeters. In still other cases, height H**1** can have a value that is greater than 5 millimeters. In some cases, the value of height H**1** could be selected in order to obtain a desired amount of actuation for actuating assembly **420** under a predetermined force.

In some embodiments, the slope of ramp portion **470** can vary. In some cases, the slope may be substantially constant. In other cases, the slop may vary, so that ramp portion **470** is curved. In some cases, the geometry of ramp portion **470** (including the slope) could be selected to achieve a predetermined amount of actuation for actuating assembly **420** under a predetermined force.

In different embodiments, the geometry of various components of cleat assembly **140** could vary. In some cases, some components could be substantially rounded. In other cases, some components could be substantially oval-like in shape. Moreover, still other components could have any other shapes including, but not limited to: rounded, circular, oval, rectangular, triangular, polygonal, regular and/or irregular shapes. Components could have symmetric shapes or asymmetric shapes. In one embodiment, some components of cleat assembly **140** could have an anti-symmetric shape. In some cases, the anti-symmetric shape may be a tear-drop like shape. For example, the cross-sectional shapes of covering member **402**, housing **410**, pivot plate **422** and base portion **442** can have substantially tear-drop like shapes. Furthermore, cross-sectional area of each component is larger at the ends aligned with cleat member **142**. This tear drop like shape allows cleat assembly **140** to have a larger cross-sectional area in the region directly over cleat member **142**. This may result in a tear-drop like shape for the actuating zone **200** over which cleat assembly **140** can be engaged by a foot, as seen in FIG. **3**. This arrangement may help control the regions of sole structure **110** where off axis actuation of cleat assembly **140** can occur.

FIG. **5** illustrates a cross sectional view of cleat assembly **140**. FIG. **6** illustrates an isolated cross sectional view of the arrangement of actuating assembly **420** and cleat sub-assembly **440**. As seen in FIG. **5**, in some cases, cleat assembly **140** is covered by sock-liner **210**. Sock-liner **210** is optional and may improve comfort for a user in some cases. Sock-liner **210** can help reduce chaffing, rubbing, or other discomfort resulting from contact between the wearer's foot and the sole structure. In other embodiments, however, sole structure **110** may not include a sock-liner.

Referring to FIGS. **5** and **6**, actuating member **430** may be inserted through extending portion **450**. In one embodiment, actuating member **430** may include threaded cavity **431** that engages fastening portion **462** in order to secure actuating member **430** to tip portion **460**. This arrangement provides a connection between actuating member **430** and tip portion **460** so that cleat member **142** and actuating member **430** move together and helps keep actuating member **430** disposed inside extending portion **450**.

Covering portion **402** is partially inserted into housing **410**. In particular, first portion **404** is disposed directly beneath sock-liner **210**. Second portion **406** is disposed within housing **410** and is disposed against pivot plate **422**. This allows for covering portion **402** to transfer force to actuating assembly **430** as a force is applied to actuating zone **200** of sole structure **110**. In some embodiments, it is possible for second portion **406** of covering member **402** to be permanently attached to pivot plate **422**. In other embodiments, however, second portion **406** may not be attached to pivot plate **422**.

A cleat assembly can include provisions for improving actuation when a force is applied away from a cleat member (also referred to as off axis actuation). For example, in some cases, a cleat assembly can include a pivoting mechanism that helps ensure a cleat member extends when a user applies a force away from a central axis of the cleat member.

Referring to FIGS. **5** and **6**, ramp portion **470** may provide a fulcrum for pivot plate **422**. In some cases, second end portion **428** of pivot plate **422** may contact raised end **475** of ramp portion **470**. Furthermore, the normal elastic force provided by extending portion **450** keeps actuating member **430** in a position such that first end portion **427** of pivot plate **422** is raised above base portion **442**. For example, in the current embodiment, first end portion **427** of pivot plate **422** is raised above base portion **442** by a distance D**1** (see FIG. **6**). With this arrangement, pivot plate **422** may pivot about second end portion **428** when a downward force is applied to pivot plate **422**. In particular, first end portion **427** of pivot plate **422** is lowered under an applied force, while second end portion **428** remains in contact with raised end **475** of ramp portion **470**. The actuation of cleat assembly **140** is described in further detail below.

Methods of making and assembling the various components of cleat assembly **140** can vary in different embodiments. As an example, actuating assembly **420** could be formed using a two shot molding process. A mold may be formed of actuating member **430** and pivot plate **422**. The mold is formed by a shot sequence including a first shot in which actuating member **430** is formed and a second shot in which pivot plate **422** is formed. In some cases, actuating member **430** and pivot plate **422** could be molded using materials that are substantially different and that do not bond to one another. This allows actuating member **430** to spin in place with respect to pivot plate **422**. In other cases, actuating member **430** and pivot plate **422** can be made of materials that bond chemically to one another during the molding process so that any relative movement between actuating member **430** and pivot plate **422** is prevented.

In some cases, cleat sub-assembly **440** may also formed using a three shot molding process. A mold may be formed of tip portion **460**, base portion **442** and extending portion **450**. In a first shot of the molding sequence, tip portion **460** may be formed around fastening portion **462**. In a second shot of the molding sequence, base portion **442** could be molded. In a third shot of the molding sequence, extending portion **450** could be molded in order to connect base portion **442** and tip portion **460**. In some cases, extending portion **450** may comprise a material that bonds to both tip portion **460** and base portion **442**. In one embodiment, extending portion **450** may be made of thermoplastic polyurethane (TPU).

In order to join housing **410** with sole structure **110**, any method of assembly could be used. In some cases, housing **410** may be friction fit into gap **461** of sole structure **110**. In other cases, housing **410** could be bonded to sole structure **110** using some kind of adhesive. Additionally, actuating assembly **420** and/or cleat sub-assembly **440** could be secured within housing **410** using any kind of method including, but not limited to: friction fits, bonding, gluing, cementing, molding, and/or mechanical connectors. Moreover, the methods used for assembling different components of cleat assembly **140** could be selected so that some components are removable/interchangeable while other components may be permanently fixed in place. For example, in some cases, actuating assembly **420** could be fit within housing **410** so that actuating assembly **420** could be removed and replaced to improve the lifetime of cleat assembly **140**.

In different embodiments, the materials used for different components could vary. For example, in some cases, first portion **404** of covering member **402** could be made of a substantially soft plastic material such as TPU. In other cases, however, first portion **404** could be made of any other material. In some cases, second portion **406** could be made of a material that is more rigid than first portion **404** in order to facilitate the transfer of forces between covering member **402** and actuating assembly **420**.

Sole structure **110** could be made of any material or combination of materials. In some cases, sole structure **110** comprises a substantially rigid material. As one example, sole structure **110** could comprise a carbon-fiber chassis that is used as a durable lower layer for an article of footwear. In other cases, however, sole structure **110** could be made of any other material that provides the desired material characteristics, such as shock absorption.

FIGS. **7** and **8** illustrate cleat assembly **140** in an unactuated, or default, position and an actuated position, respectively. The default position corresponds to the position of cleat assembly **140** whenever the amount of force applied to covering member **402** is less than some predetermined amount of force. The actuated position corresponds to the position of cleat assembly **140** whenever the amount of force applied to covering member **402** exceeds the predetermined amount of force. In the actuated position cleat member **142** is elongated and extends further away from sole structure **110**.

The predetermined amount of force may be determined according to the construction of cleat assembly **140**. For example, in some cases, the predetermined force may be chosen so that cleat assembly **140** is actuated under forces that would normally be encountered when a user cuts or makes another kind of athletic maneuver on a ground surface. In particular, the predetermined force may be chosen to be higher than the normal force applied by a user to covering member **402** due to the weight of the user. This helps prevent cleat member **142** from extending when a user is standing still on a ground surface. In some cases, the predetermined force is a threshold force above which the cleat may be extended between a default position and a fully extended position. It will be understood that in some cases, forces above the predetermined force may result in partial extension of the cleat member until the force is large enough to cause maximal extension of the cleat member.

In the default position shown in FIG. **7**, first end portion **427** of pivot plate **422** is raised above first end **466** of base portion **442** by a distance D**1**. Moreover, cleat member **142** is extended from lower surface **445** of base portion **442** by distance D**2**. Referring now to FIG. **8**, a foot provides a downward force at first region **407** of covering member **402**. First region **407** may be approximately aligned with central axis **439** of actuating member **430**. As first region **407** is depressed, the force is transferred from covering member **402** to actuating assembly **420**. At this point, since the force is applied directly over actuating member **430**, actuating member **430** is pressed downwards. Pivot plate **422** pivots about ramp portion **470** so that first end portion **427** of pivot plate **422** is lowered. In some cases, pivot plate **422** may deform and become approximately parallel with ramp portion **470**. In other cases, pivot plate **422** may be lowered but may remain spaced apart from ramp portion **470**.

As actuating member **430** is pressed into cleat member **142**, extending portion **450** is stretched, thereby extending cleat member **142**. This allows cleat member **142** to extend further into a ground surface in order to provide enhanced traction during various athletic maneuvers such as cutting.

In the current embodiment, cleat member **142** is extended a distance D**3** below lower surface **445** of base portion **442**. In some cases, distance D**3** may be greater than distance D**2** by an amount in the range between 0 and 5 millimeters. In some cases, distance D**3** may be greater than distance D**2** by an amount greater than 5 millimeters. In some cases, distance D**3** is greater than distance D**2** by approximately 3 millimeters. In other words, cleat member **142** is configured to extend by an amount of up to approximately 3 millimeters under a force applied by a wearer's foot during use.

FIG. **9** illustrates an embodiment of the actuation of cleat assembly **140** under a downward force applied by a foot at second region **409** of covering member **402**. In contrast to the configuration shown in FIG. **8**, where the force is applied by the toe of the foot, in this configuration the force is applied by the ball of the foot. This results in covering member **402** applying a downward force to actuating assembly **420** at a location closer to second end portion **428** of pivot plate **422**. In particular, the downward force is applied away from central axis **439** of cleat member **142**. In this case, the force is applied at a location that is separated from central axis **439** by a distance D**4** in the longitudinal direction of cleat assembly **140**.

In this situation, the pivoting configuration of actuating assembly **420** allows pivot plate **422** to tilt downwardly. Moreover, as pivot plate **422** is tilted down, actuating member **430** applies a force to cleat member **142** that elongates extending portion **450**. This results in the extension of cleat member **142** so that cleat member **142** is extended a distance D**3** below lower surface **445** of base portion **442**. In other words, although the force applied by the foot is not centered directly over actuating member **430**, the pivoting arrangement of actuating assembly **430** provides a means for channeling the off-axis force to actuating member **430** in a manner that allows cleat member **142** to extend to a substantially similar distance as when the force is applied directly over actuating member **430**. This helps increase the likelihood that cleat member **142** will be extended under a predetermined amount of force applied by a foot in order to ensure the proper amount of traction is supplied by cleat assembly **140**.

FIG. **10** is a schematic view of actuating assembly **420** and cleat sub-assembly **440** that is intended to show how an off-axis force is transferred to actuating member **430**. In this case, a downward force is applied at first location **1002** of pivot plate **422**. First location **1002** is located away from central axis **1050** of actuating member **430**. However, the downward force tilts pivot plate **422** so that the force is transferred along pivot plate **422** from first location **1002** to second location **1004**, which is a location of pivot plate **422** associated with actuating member **430**. This force is then further transferred from actuating member **430** to cleat member **142** so that extending portion **450** is stretched and tip portion **460** can extend further into a ground surface. In other words, actuating assembly **420** acts to channel or funnel the force provided at any location along pivot plate **422** towards actuating member **430** and into cleat member **142**.

The amount of extension undergone by a cleat member can vary. In some cases, the degree of extension may be substantially similar when the force is applied to different regions of a covering member. In other cases, the degree of extension could be substantially different when the force is applied to different regions of a covering member. Moreover, in some cases, the amount of extension could vary between 0 and 10 millimeters. In other cases, the amount of extension could vary between 1 and 3 millimeters. In still other cases, the amount of extension could be greater than 10 millimeters.

In some embodiments, pivot plate **422** may be configured to bend or otherwise deform under an applied force. In other embodiments, however, pivot plate **422** could remain substantially straight and may tilt or pivot without substantially deforming. The amount of bending or deformation of pivot plate **422** can depend on the type of materials used to form pivot plate **422** and may also depend on the geometry of pivot plate **422**.

In some embodiments, cleat assembly **140** can include provisions to prevent unwanted extension of a cleat member. For example, in some cases, cleat assembly **140** can be configured so that cleat member **142** may not extend unless base portion **442** or sole structure **110** are in contact with a ground surface. This could be achieved by tuning cleat assembly **140** so that the predetermined force required to extend cleat member **142** is only achieved when base portion **442** is already contacting the ground.

A cleat assembly can include provisions to facilitate stability and maintain consistent actuation. FIG. **11** illustrates an isometric view of an embodiment of a cleat assembly **1100**. For purposes of clarity, actuating assembly **1120** and cleat sub-assembly **1140** are the only components of cleat assembly **1100** that are shown, however other embodiments could include additional components such as a housing and covering member.

Actuating assembly **1120** may include similar features to actuating assembly **420** of the previous embodiments. For example, actuating assembly **1120** can include pivot plate **1122** and actuating member **1130**. Likewise, cleat sub-assembly **1140** can include similar features to cleat sub-assembly **440** of the previous embodiments. For example, cleat sub-assembly **1140** can include base portion **1142**, extending portion **1150** and tip portion **1160**. Base portion **1142** can further include ramp portion **1170**.

In the current embodiment, actuating assembly **1120** and cleat sub-assembly **1140** are provided with means for maintaining alignment. In this case, pivot plate **1122** includes rib **1126** on a lower surface **1127** of pivot plate **1122** that is configured to confront base portion **1142**. Additionally, base portion **1142** includes slot **1172** that is disposed in ramp portion **1170** and configured to receive rib **1126**. In some cases, rib **1126** may be tapered so that pivot plate **1122** can still pivot or rock with respect to base portion **1142**. This configuration can help maintain proper alignment between base portion **1142** and pivot plate **1122**. In particular, this configuration prevents rotation between actuating assembly **1120** and cleat sub-assembly **1140**.

It will be understood, however, that some embodiments may not include a rib and slot arrangement. In other cases, any other provisions known in the art for improving mechanical stability could be used to maintain the desired alignment between actuating assembly **1120** and cleat sub-assembly **1140**.

FIGS. **12-19** illustrate various views of another embodiment of a sole structure including extendable cleats. The embodiment shown in FIGS. **12-19** may include some similar features to the embodiments discussed above. However, other features of the embodiments discussed above may be optional in the current embodiment. Moreover, the current embodiment could also include features not included in the above embodiments. It will likewise be understood that other embodiments could incorporate features from two or more different embodiments discussed in this detailed description.

FIG. **12** illustrates an isometric bottom view of sole structure **1210** that may include one or more extendable cleats, as described below. For purposes of reference, components of sole structure **1210** may be divided into forefoot portion **20**, midfoot portion **22** and heel portion **24**. Forefoot portion **20** may be generally associated with the toes and joints connecting the metatarsals with the phalanges. Midfoot portion **22** may be generally associated with the arch of a foot. Likewise, heel portion **24** may be generally associated with the heel of a foot, including the calcaneus bone. In addition, sole structure **1210** may include lateral side **26** and medial side **28**. In particular, lateral side **26** and medial side **28** may be opposing sides of sole structure **1210**. Furthermore, both lateral side **26** and medial side **28** may extend through forefoot portion **20**, midfoot portion **22** and heel portion **24**.

It will be understood that forefoot portion **20**, midfoot portion **22** and heel portion **24** are only intended for purposes of description and are not intended to demarcate precise regions of sole structure **1210**. Likewise, lateral side **26** and medial side **28** are intended to represent generally two sides of a sole structure, rather than precisely demarcating sole structure **1210** into two halves. In addition, forefoot portion **20**, midfoot portion **22** and heel portion **24**, as well as lateral side **26** and medial side **28**, can also be applied to individual components of a sole structure, such as a sockliner, insole or any other component.

In some embodiments, sole structure **1210** may be joined with an upper. The upper could be configured with any design, shape, size and/or color. Moreover, the upper could include various provisions for securing sole structure **1210** to a foot. In other cases, however, sole structure **1210** may not be attached to an upper.

In some embodiments, sole structure **1210** may be configured to provide traction for an article of footwear. In addition to providing traction, sole structure **1210** may attenuate ground reaction forces when compressed between the foot and the ground during walking, running or other ambulatory activities. The configuration of sole structure **1210** may vary significantly in different embodiments to include a variety of conventional or non-conventional structures. In some cases, the configuration of sole structure **1210** can be configured according to one or more types of ground surfaces on which sole structure **1210** may be used. Examples of ground surfaces include, but are not limited to: natural turf, synthetic turf, dirt, as well as other surfaces.

In different embodiments, sole structure **1210** may include different components. For example, sole structure **1210** may include an outsole, a midsole, and/or an insole. In some cases, one or more of these components may be optional. In one embodiment, sole structure **1210** may comprise an outsole or lower layer for the sole of a shoe and could be incorporated with a separate midsole (not shown) and/or insole.

In some embodiments, sole structure **1210** could comprise a substantially rigid chassis. For example, in some cases, sole structure **1210** could comprise a carbon fiber plate that provides strength and durability. In addition, in some cases, sole structure **1210** could include one or more layers of material that surround a rigid chassis. For example, in some cases, sole structure **1210** could comprise rigid chassis **1212** and molded plastic layer **1214**, as shown in an enlarged cross section in FIG. **12**. In some cases, rigid chassis **1212** could comprise a carbon fiber composite material. In other cases, rigid chassis **1212** could comprise any other substantially rigid material. In other cases, however, sole structure **1210** could comprise only a rigid layer, such as a carbon fiber layer. In still other cases, sole structure **1210** could comprise only a layer of molded plastic.

Sole structure **1210** can include cleat system **1230** that comprises one or more cleat members. In some cases, cleat system **1230** includes plurality of cleats **1232** disposed on lower surface **1260** of sole structure **1210**. Plurality of cleats **1232** may comprise any type of cleats disposed in any portion of sole structure **1210**. For example, in some cases, plurality of cleats **1232** includes four cleats disposed in forefoot portion **20** and two cleats disposed in heel portion **24** of sole structure **1210**. In other cases, however, any other number and/or arrangement of cleats is possible. Moreover, in different embodiments the shape and/or size of cleats could vary.

In some cases, plurality of cleats **1232** comprises cleats with an approximately ridge-like shape. However, in other embodiments, any other shape for plurality of cleats **1232** is possible. In some other embodiments, different cleats of plurality of cleats **1232** could have substantially different shapes in order to provide different amounts of traction over different portions of sole structure **1210**.

Cleat system **1230** can also include first cleat assembly **1240** and second cleat assembly **1250**. First cleat assembly **1240** comprises cleat member **1242**. In some cases, cleat member **1242** is an extendable cleat that is configured to penetrate further into a ground surface following actuation of some kind. In contrast to plurality of cleats **1232**, which are fixed in place with respect to sole structure **1210**, cleat member **1242** is capable of extending outwardly from sole structure **1210** in order to provide enhanced traction and control for a user. The operation of cleat assembly **1240**, including the extension of cleat member **1242**, is described in detail below.

In some cases, cleat assembly **1240** can also include projections **1244** that are part of cleat assembly **1240**. Projections **1244** may be fixed in place with respect to sole structure **1210** in order to provide stability for the actuation of cleat member **1242**. In some cases, projections **1244** can comprise cleat-like projections that enhance the traction provided by cleat assembly **1240**.

In some embodiments, the number and arrangement of projections **1244** could vary. In some cases, projections **1244** may include a single projection. In other cases, however, projections **1244** may include two or more projections. In one embodiment, projections **1244** include three projections. In still other cases, projections **1244** can include more than three projections. Moreover, in some cases, projections **1244** may be evenly spaced around cleat member **1242** so as to encircle cleat member **1242**. In other cases, however, projections **1244** could be arranged in any other manner on cleat assembly **1240**.

Second cleat assembly **1250** may be configured in a similar manner to first cleat assembly **1240**. In particular, second cleat assembly **1250** can include cleat member **1252** that is an extendable cleat configured to penetrate further into a ground surface following actuation of some kind. Moreover, second cleat assembly **1250** could include any number of projections **1254** that are arranged in any manner.

In different embodiments, the approximate location of a cleat assembly with an extendable cleat member could be varied. For example, in some cases, one or more cleat assemblies could be disposed in forefoot portion **20** of sole structure **1210**. In other cases, one or more cleat assemblies could be disposed in midfoot portion **22** and/or heel portion **24** of sole structure **1210**. In one embodiment, first cleat assembly **1240** and second cleat assembly **1250** may be disposed in forefoot portion **20** of sole structure **1210**. In particular, first cleat assembly **1240** may be disposed in region **1272** of sole structure **1210** while second cleat assembly **1250** may be disposed in region **1270**. In some cases, region **1270** may be associated with the toes, or phalanges, of the foot. In other cases, however, region **1270** could be any other region of sole structure **1210**. In some cases, region **1272** may be associated with the ball of the foot and/or the metatarsal heads. In other cases, however, region **1272** could be any other region of sole structure **1210**.

In some cases, a cleat assembly could be approximately located towards medial side **28** of sole structure **1210**. In other cases, a cleat assembly could be located towards lateral side **26** of sole structure **1210**. The location of a cleat assembly with an extendable cleat may be selected to correspond to a region where downward force is applied by a foot during various kinds of motion such as running and/or cutting. As an example, the current location of first cleat assembly **1240** and second cleat assembly **1250** along medial side **28** of forefoot portion **20** may allow the cleat assemblies to enhance traction as a user makes a medial cut.

FIG. **13** illustrates a top down schematic view of upper surface **1302** of sole structure **1210**. Upper surface **1302** is a surface that is configured to face inwardly when sole structure **1210** is attached to an upper. In particular, upper surface **1302** is located proximally to lower surface **1260** (see FIG. **12**) and therefore may be adjacent to a foot when an article incorporating sole structure **1210** is worn.

Referring to FIG. **13**, sole structure **1210** can include first covering member **1402** and second covering member **1403** of first cleat assembly **1240** and second cleat assembly **1250**, respectively. In some cases, each covering member is visible on upper surface **1302**. In some cases, each covering member provides an actuating surface for transferring force to the respective cleat assembly.

In some cases, a covering member could be partially transparent, so that some portions of a cleat assembly can be seen beneath the covering member. In other cases, a covering member could be substantially opaque. In one embodiment, covering member **1402** and covering member **1403** are partially transparent. In particular, in some cases, portions of the actuating assemblies associated with cleat assembly **1240** and cleat assembly **1250** may be visible through covering member **1402** and covering member **1403**, respectively.

Although two cleat assemblies are shown in the current embodiment, other embodiments could include additional cleat assemblies at various different locations on sole structure **1210**. For example, in another embodiment, additional cleat assemblies could be disposed on lateral side **26** of forefoot portion **20**. In still other cases, other cleat assemblies could be disposed in heel portion **24**.

In some embodiments, first cleat assembly **1240** may be actuated as a user applies a downwards force to covering member **1402**, in a manner described in further detail below. Likewise, second cleat assembly **1250** may be actuated as a user applies a downward force to covering member **1403**.

FIG. **14** illustrates an isometric exploded view of cleat assembly **1240**. Cleat assembly **1240** may comprise covering member **1402**, housing **1410**, actuating assembly **1420** and cleat sub-assembly **1440**.

Covering member **1402** may comprise a layer of material that is disposed over the top of housing **1410**. Moreover, covering member **1402** is intended to be disposed over all of the components of cleat assembly **1240**. This arrangement helps to protect the components of cleat assembly **1240** from debris. This arrangement also provides an actuating surface that can transfer forces between a foot and actuating assembly **1420**.

In some cases, covering member **1402** comprises a substantially flexible member. By using a flexible covering member, cleat assembly **1240** can be easily actuated as covering member **1402** deforms to engage actuating assembly **1420** under an applied force. In other cases, however, covering member **1402** could be substantially rigid.

Housing **1410** comprises a ring-like structure with upper rim **1416** and lower portion **1418**. In some cases, lower portion **1418** may be configured to insert into gap **1461** in chassis **1212** of sole structure **1210**. In other cases, however, lower portion **1418** may not insert into gap **1461**, and may instead insert into a recess or gap in an over molding layer of sole structure **1210**. In still other cases, lower portion **1418** could rest on an upper surface of sole structure **1210**.

In some cases, housing **1410** may comprise a substantially rigid material. In other cases, housing **1410** could comprise a substantially flexible material. Moreover, in some cases, housing **1410** could be more rigid than covering member **1402**. In still other cases, housing **1410** could be less rigid than covering member **1402**. In other cases, housing **1410** could have a substantially similar rigidity as covering member **1402**.

In some cases, lower portion **1418** may be sized to receive portions of actuating assembly **1420**. In particular, lower potion **1418** may be configured to restrain the sides of one or more portions of actuating assembly **1420**. Additionally, in some embodiments, lower portion **1418** can include recessed portion **1419**. In some cases, recessed portion **1419** may be configured to receive portions of actuating assembly **1420**. This arrangement can provide a stopping mechanism to help reduce actuation of cleat assembly **1240** in a proximal direction, as discussed in further detail below. However, other embodiments may not include a recessed portion.

In some cases, covering member **1402** and housing **1410** can be permanently attached together. In other cases, however, covering member **1402** and housing **1410** may not be permanently attached together. Moreover, in some cases, outer edge **1405** of covering member **1402** may be aligned with outer edge **1411** of housing **1410**. In other cases, outer edge **1405** may not be aligned with outer edge **1411**.

Actuating assembly **1420** can further include pivot plate **1422** and actuating member **1430**. Pivot plate **1422** can include lower portion **1423** and upper portion **1424**. In some cases, the cross-sectional area of upper portion **1424** may be slightly less than the cross-sectional area of lower portion **1423**. In some cases, for example, lower portion **1423** can comprise a lipped or flanged portion that is configured to interact with recessed portion **1419** of housing **1410**.

Pivot plate **1422** also includes first end portion **1427** and second end portion **1428**. First end portion **1427** may include hole **1425**. In some cases, hole **1425** is a substantially rounded hole that is configured to receive actuating member **1430**. Moreover, in some cases, hole **1425** may be further associated with upper recessed portion **1426** and lower recessed portion **1437** (see FIG. **15**).

Actuating member **1430** can include base portion **1431**. In some cases, base portion **1431** may have an approximately frustum-conical shape. In other cases, however, base portion **1431** could have any other geometry. The geometry of base portion **1431** can be selected so that base portion **1435** may be inserted into cleat member **1242**.

Additionally, actuating member **1430** can include lower flange **1433** and upper flange **1432**. In some cases, upper flange **1432** and lower flange **1433** can engage upper recessed portion **1426** and lower recessed portion **1437** of pivot plate **1422**. This allows actuating member **1430** to attach to pivot plate **1422** so that portion **1439** of pivot plate **1422** is secured between upper flange **1432** and lower flange **1433**. Using this arrangement, actuating member **1430** may be substantially flush with upper surface **1429** of pivot plate **1422**. Moreover, this arrangement may help prevent actuating member **1430** from being separated from pivot plate **1422** following assembly of actuating assembly **1420**.

In some cases, actuating member **1430** can be permanently fixed in place with respect to pivot plate **1422** so that actuating member **1430** cannot rotate with respect to pivot plate **1422**. In other cases, however, actuating member **1430** may not be fixed in place with respect to pivot plate **1422** and may be configured to freely rotate within hole **1425**. This arrangement allows actuating member **1430** to be fastened to a component of cleat sub-assembly **1440**, as discussed in detail below.

In order to facilitate the actuation of cleat assembly **1240**, the thickness of pivot plate **1422** can be varied. For example, in some cases, the thickness of pivot plate **1422** can be substantially constant. In other cases, the thickness of pivot plate **1422** could vary along the length of pivot plate **1422**. For example, in one embodiment, the thickness T**1** of pivot plate **1422** at first end portion **1427** could be substantially different than the thickness T**2** of pivot plate **1422** at second end portion **1428**. In some cases, thickness T**1** may be substantially less than thickness T**2**. In other cases, thickness T**1** may be substantially greater than thickness T**2**. In still other cases, thickness T**1** and thickness T**2** could be approximately similar. In an embodiment where the thickness of pivot plate **1422** is greater at second end portion **1428**, the top surface **1429** of pivot plate **1422** could be slightly slanted or angled rather than completely flat.

Cleat sub-assembly **1440** can include base portion **1442** as well as cleat member **1242**. Cleat member **1242** includes extending portion **1450** (also referred to as an elastic member) and tip portion **1460**. Extending portion **1450** can include first end **1452** and second end **1454**. In some cases, tip portion **1460** is joined with second end **1454**.

Cleat sub-assembly **1440** can include provisions for engaging with actuating member **1430**. In some cases, tip portion **1460** includes fastening portion **1462** that is configured to engage actuating member **1430**. In some cases, fastening portion **1462** could be a threaded portion. In one embodiment, for example, fastening portion **1462** comprises threads **1463** that may engage actuating member **1430**. In some cases, fastening portion **1462** could be a separate fastener that is attached to tip portion **1460**. In other cases, fastening portion **1462** could be integrally formed with tip portion **1460**, such as during a molding process. In still other cases, tip portion **1460** may not fasten to actuating member **1430**. In some cases, for example, tip portion **1460** could be permanently attached to actuating member **1430**.

In some embodiments, extending portion **1450** may be a substantially flexible portion that can extend and/or stretch under an applied force. In some cases, tip portion **1460** may comprise a substantially rigid portion. In particular, in some cases, tip portion **1460** may be substantially more rigid than extending portion **1450**. As extending portion **1450** stretches or extends, so that first end **1452** is displaced further from second end **1454**, tip portion **1460** may also extend away from first end portion **1452**. In other cases, tip portion **1460** could also be made of a substantially elastic material and may partially deform under an applied force.

Base portion **1442** includes projections **1244** on lower side **1444** that have already been discussed and shown in FIG. **12**. Projections **1244** can help increase traction and provide additional balance while cleat member **1242** is engaged with a ground surface. Base portion **1442** may also include hole **1446** on first end portion **1466** that receives extending portion **1450**. In some cases, hole **1446** is further associated with recessed portion **1448** that may receive flange **1451** of extending portion **1450**.

Base portion **1442** can also include angled portion **1470**. Angled portion **1470** may be angled or sloped with respect to first end portion **1466** of base portion **1442**, which includes hole **1446**. In contrast to the ramped geometry of base portion **1442** in the previous embodiments, where the thickness of base portion **1442** increased, angled portion **1470** has a substantially constant thickness. With this arrangement, angled portion **1470** presents a sloped upper surface **1447** for base portion **1442** in order to facilitate off axis actuation of cleat member **1242**.

In some embodiments, the slope of angled portion **1470** can vary. In some cases, the slope may be substantially constant. In other cases, the slope may vary, so that angled portion **1470** is curved. In some cases, the geometry of angled portion **1470** (including the slope) could be selected to achieve a predetermined amount of actuation for actuating assembly **1420** under a predetermined force.

In some cases, the angle **1499** between angled portion **1470** and first end portion **1466** of base portion **1442** can be varied in order to modify the actuation properties of cleat assembly **1440**. In some cases, the value of angle **1499** can vary in the range between 0 and 45 degrees. In other cases, the value of angle **1499** can vary in the range between 0 and 20 degrees. In still other cases, the value of angle **1499** can vary in the range between 0 and 5 degrees.

In different embodiments, the geometry of various components of cleat assembly **1440** could vary. In some cases, some components could be substantially rounded. In other cases, some components could be substantially oval-like in shape. Moreover, still other components could have any other shapes including, but not limited to: rounded, circular, oval, rectangular, triangular, polygonal, regular and/or irregular shapes. Components could have symmetric shapes or asymmetric shapes. In one embodiment, some components of cleat assembly **1240** could have an anti-symmetric shape. In some cases, the anti-symmetric shape may be a tear-drop like shape. For example, the cross-sectional shapes of covering member **1402**, housing **1410**, pivot plate **1422** and base portion **1442** can have substantially tear-drop like shapes. Furthermore, the cross-sectional area of each component is larger at the ends aligned with cleat member **1242**. This tear drop like shape allows cleat assembly **1240** to have a larger cross-sectional area in the region directly over cleat member **1242**. This may result in a tear-drop like shape for the actuating zone over which cleat assembly **1240** can be engaged by a foot, as seen in FIG. **13**. This arrangement may help restrict, or otherwise control, the regions of sole structure **1210** where off axis actuation of cleat assembly **1240** can occur.

It will be understood that the configuration of cleat assembly **1250** (see FIG. **12**) could be substantially similar to the configuration of cleat assembly **1240** in many respects. In some cases, second cleat assembly **1250** could include substantially identical components that facilitate extending cleat member **1252** under an applied force. In other cases, however, second cleat assembly **1250** could include some components of first cleat assembly **1240**, but not others. Moreover, in some cases, second cleat assembly **1250** could include additional provisions not found in first cleat assembly **1240**.

FIG. **15** illustrates a cross sectional view of cleat assembly **1240**. For purposes of clarity, layer **1214** of sole structure **1210** is not shown in FIG. **15** as well as in FIGS. **16** and **17**, which are also cross-sectional views. Referring to FIG. **15**, actuating member **1430** may be inserted through extending portion **1450**. In one embodiment, actuating member **1430** may include threaded cavity **1435** that engages fastening portion **1462** in order to secure actuating member **1430** to tip portion **1460**. This arrangement provides a connection between actuating member **1430** and tip portion **1460** so that cleat member **1242** and actuating member **1430** move together and helps keep actuating member **1430** disposed inside extending portion **1450**.

Housing **1410** is inserted through chassis **1212** of sole structure **1210** so that actuating assembly **1420** is disposed partially within housing **1410**. In addition, base portion **1442** is permanently attached to chassis **1212**. With this arrangement, housing **1410**, base portion **1442** and covering member **1402** enclose actuating assembly **1420** from the side, below and above, respectively. In particular, actuating assembly **1420** may be fully enclosed within these components.

In the default position shown in FIG. **15**, in which the net downward force on covering member **1402** does not exceed a predetermined force, the elastic force of extending portion **1450** may keep pivot plate **1422** raised above base portion **1442**. In particular, pivot plate **1422** and base portion **1442** are separated by some spacing, which provides some traveling space for pivot plate **1422** to move downwardly (or proximally) within cleat assembly **1240** during extension. In some cases, end portion **1471** of angled portion **1470** may be spaced apart from pivot plate **1422** by spacing S2 and end portion **1473** of pivot plate **1470** may be spaced apart from pivot plate **1422** by spacing S1. In some cases, spacing S2 may be substantially less than spacing S1, so that end portion **1473** is closer to pivot plate **1422** than end portion **1473**. This allows end portion **1473** to come into contact with angle portion **1470** before end portion **1473** contacts angled portion **1470**, thus allowing pivot plate to pivot about end portion **1471**.

In order to help prevent cleat member **1242** from retracting too far into cleat assembly **1240**, cleat assembly **1240** can be provided with one or more stopping mechanisms. In one embodiment, lower portion **1423** of pivot plate **1422** is configured to fit into recessed portion **1419** of housing **1410**. At the point where lower portion **1423** engages recessed portion **1419**, housing **1410** acts to restrain any further proximal movement of actuating assembly **1420**. In other words, this configuration prevents actuating assembly **1420** from rising out of housing **1410** and applying a pressure back on the foot of the user. Although the current embodiment discloses one example of a stopping mechanism to restrict the retraction of a cleat member, it will be understood that in other embodiments any other kinds of stopping mechanisms and/or locking mechanisms could be used.

Referring back to FIG. **14**, methods of making and assembling the various components of cleat assembly **1240** can vary in different embodiments. As an example, actuating assembly **1420** could be formed using a two shot molding process. A mold may be formed of actuating member **1430** and pivot plate **1422**. The mold is formed by a shot sequence including a first shot in which actuating member **1430** is formed and a second shot in which pivot plate **1422** is formed. In some cases, actuating member **1430** and pivot plate **1422** could be molded using materials that are substantially different and that do not bond to one another. This allows actuating member **1430** to spin in place with respect to pivot plate **1422**. In other cases, actuating member **1430** and pivot plate **1422** can be made of materials that bond chemically to one another during the molding process so that any relative movement between actuating member **1430** and pivot plate **1422** is prevented.

In some cases, cleat sub-assembly **1440** may also formed using a three shot molding process. A mold may be formed of tip portion **1460**, base portion **1442** and extending portion **1450**. In a first shot of the molding sequence, tip portion **1460** may be formed with an integrally formed fastening portion **1462**. In a second shot of the molding sequence, base portion **1442** could be molded. In a third shot of the molding sequence, extending portion **1450** could be molded in order to connect base portion **1442** and tip portion **1460**. In some cases, extending portion **1450** may comprise a material that bonds to both tip portion **1460** and base portion **1442**. In one embodiment, extending portion **1450** may be made of thermoplastic polyurethane (TPU).

In order to join housing **1410** with sole structure **1210**, any method of assembly could be used. In some cases, housing **1410** may be friction fit into gap **1461** of chassis **1212**. In other cases, housing **1410** could be bonded to sole structure **1210** using some kind of adhesive. Additionally, actuating assembly **1420** could be secured within housing **1410** using any kind of method including, but not limited to: friction fits, bonding, gluing, cementing, molding, and/or mechanical connectors. Additionally, in some cases, base portion **1442** could be attached to chassis **1212** or any other portion of sole structure **1210** using any kind of attachment method including, but not limited to, those described above for securing housing **1410**. Moreover, the methods used for assembling different components of cleat assembly **1240** could be selected so that some components are removable/interchangeable while other components may be permanently fixed in place. For example, in some cases, actuating assembly **1420** could be fit within housing **1410** so that actuating assembly **1420** may be removed and replaced to improve the lifetime of cleat assembly **1240**.

In different embodiments, the materials used for different components could vary. For example, in some cases, covering member **1402** could be made of a substantially soft plastic material such as TPU. In other cases, however, covering member **1402** could be made of any other material. In addition, in some cases, extending portion **1450** could be made of a substantially elastic material. In some cases, extending portion **1450** could be made of a substantially similar material to covering member **1402**. In other cases, extending portion **1450** could be made of a different material than covering member **1402**. In one embodiment, covering member **1402** and extending portion **1450** could both be made of a plastic such as TPU.

Sole structure **1210** could be made of any material or combination of materials. In some cases, sole structure **1210** comprises a substantially rigid material. As one example, sole structure **1210** could comprise a carbon-fiber chassis that is used as a durable lower layer for an article of footwear. In other cases, however, sole structure **1210** could be made of any other material that provides the desired material characteristics, such as shock absorption. In one embodiment, sole structure **1210** comprises a carbon fiber chassis that is embedded in a plastic layer or matrix as previously described.

A cleat assembly can include provisions for improving actuation when a force is applied away from a cleat member (also referred to as off axis actuation). For example, in some cases, a cleat assembly can include a pivoting mechanism that helps ensure a cleat member extends when a user applies a force away from a central axis of the cleat member.

Referring to FIG. **15**, angled portion **1470** may provide a fulcrum for pivot plate **1422**. In particular, as a downward force is applied to actuating assembly **1420** from covering member **1402**, second end portion **1428** of pivot plate **1422** may first come into contact with end portion **1471** of angled portion **1470**, which is displaced proximally to end portion **1473** of angled portion **1470**. This arrangement acts to tilt pivot plate **1422** about the contact point between end portion **1471** and pivot plate **1422**.

FIGS. **15** and **16** illustrate cleat assembly **1240** in an un-actuated, or default, position and an actuated position, respectively. The default position corresponds to the position of cleat assembly **1240** whenever the amount of force applied to covering member **1402** is less than some predetermined amount of force. The actuated position corresponds to the position of cleat assembly **1240** whenever the amount of force applied to covering member **1402** exceeds the predetermined amount of force. In the actuated position cleat member **1242** is elongated and extends further away from sole structure **1210**.

The predetermined amount of force may be determined according to the construction of cleat assembly **1240**. For example, in some cases, the predetermined force may be chosen so that cleat assembly **1240** is actuated under forces that would normally be encountered when a user cuts or makes another kind of athletic maneuver on a ground surface. In particular, the predetermined force may be chosen to be higher than the normal force applied by a user to covering member **1402** due to the weight of the user. This helps prevent cleat member **1242** from extending when a user is standing still on a ground surface. In some cases, the predetermined force is a threshold force above which the cleat may be extended between a default position and a fully extended position. It will be understood that in some cases, forces above the predetermined force may result in partial extension of the cleat member until the force is large enough to cause maximal extension of the cleat member.

In the default position shown in FIG. **15**, first end portion **1427** of pivot plate **1422** is raised above base portion **1442**. Moreover, cleat member **1242** is extended from lower surface **1445** of base portion **1442** by distance D**5**. Referring now to FIG. **16**, a foot **1602** provides a downward force at first region **1607** of covering member **1402**. First region **1607** may be approximately aligned with central axis **1620** of actuating member **1430**. As first region **1607** is depressed, the force is transferred from covering member **1402** to actuating assembly **1420**. At this point, since the force is applied directly over actuating member **1430**, actuating member **1430** is pressed downwards. After traveling some distance, pivot plate **1422** contacts angled portion **1470** and pivots about end portion **1471** of angled portion **1470**. In some cases, pivot plate **1422** may become approximately parallel with angled portion **1470**. In other cases, pivot plate **1422** may be lowered but may remain spaced apart from angled portion **1470**.

As actuating member **1430** is pressed into cleat member **1242**, extending portion **1450** is stretched, thereby extending cleat member **1242**. This allows cleat member **1242** to extend further into a ground surface in order to provide enhanced traction during various athletic maneuvers such as cutting.

In the current embodiment, cleat member **1242** is extended a distance D**6** below lower surface **1445** of base portion **1442**. In some cases, distance D**6** may be greater than distance D**5** by an amount in the range between 0 and 5 millimeters. In some cases, distance D**6** may be greater than distance D**5** by an amount greater than 5 millimeters. In some cases, distance D**6** is greater than distance D**5** by approximately 3 millimeters. In other words, cleat member **1242** is configured to extend by an amount of up to approximately 3 millimeters under a force applied by a the foot of a wearer. This additional 3 millimeters of extension may provide enhanced traction with a ground surface as a user cuts.

FIG. **17** illustrates an embodiment of the actuation of cleat assembly **1240** under a downward force applied by a foot at second region **1609** of covering member **1402**. In contrast to the configuration shown in FIG. **16**, where the force is applied by the outer edge of foot **1602**, in this configuration the force is applied by an inner portion of foot **1602**. This results in covering member **1402** applying a downward force to actuating assembly **1420** at a location closer to second end portion

1428 of pivot plate **1422**. In particular, the downward force is applied away from central axis **1620** of cleat member **1242**. In this case, the force is applied at a location that is separated from central axis **1620** by a distance D**7** in the longitudinal direction of cleat assembly **1240**.

In this situation, the pivoting configuration of actuating assembly **1420** allows pivot plate **1422** to tilt downwardly. Moreover, as pivot plate **1422** is tilted down, actuating member **1430** applies a force to cleat member **1242** that elongates extending portion **1450**. This results in the extension of cleat member **1242** so that cleat member **1242** is extended a distance D**6** below lower surface **1445** of base portion **1442**. In other words, although the force applied by the foot is not centered directly over actuating member **1430**, the pivoting arrangement of actuating assembly **1420** provides a means for channeling the off-axis force to actuating member **1430** in a manner that allows cleat member **1242** to extend to a substantially similar distance as when the force is applied directly over actuating member **1430**. This helps increase the likelihood that cleat member **1242** will be extended under a predetermined amount of force applied by a foot in order to ensure the proper amount of traction is supplied by cleat assembly **1240**.

A sole structure can include provisions for enhancing the likelihood that a cleat member may extend into a ground surface. In some cases, the alignment of one or more cleat assemblies can be selected to improve the chance of cleat extension. In some cases, for example, each cleat assembly could be aligned in a radial manner with respect to a sole structure, which may increase the likelihood of actuation as the weight of a user shifts towards a lateral and/or forward edge of a sole structure during cutting or other athletic maneuvers.

FIG. **18** is a schematic view of actuating assembly **1420** and cleat sub-assembly **1440** that is intended to show how an off-axis force is transferred to actuating member **1430**. In this case, a downward force is applied at first location **1802** of pivot plate **1422**. First location **1802** is located away from central axis **1850** of actuating member **1430**. However, the downward force tilts pivot plate **1422** so that the force is transferred along pivot plate **1422** from first location **1802** to second location **1804**, which is a location of pivot plate **1422** associated with actuating member **1430**. This force is then further transferred from actuating member **1430** to cleat member **1242** so that extending portion **1450** is stretched and tip portion **1460** can extend further into a ground surface. In other words, actuating assembly **1420** acts to channel or funnel the force provided at any location along pivot plate **1422** towards actuating member **1430** and into cleat member **1242**.

The amount of extension undergone by a cleat member can vary. In some cases, the degree of extension may be substantially similar when the force is applied to different regions of a covering member. In other cases, the degree of extension could be substantially different when the force is applied to different regions of a covering member. Moreover, in some cases, the amount of extension could vary between 0 and 10 millimeters. In other cases, the amount of extension could vary between 1 and 3 millimeters. In still other cases, the amount of extension could be greater than 10 millimeters.

In some embodiments, pivot plate **1422** may be configured to bend or otherwise deform under an applied force. In other embodiments, however, pivot plate **1422** could remain substantially straight and may tilt or pivot without substantially deforming. The amount of bending or deformation of pivot plate **1422** can depend on the type of materials used to form pivot plate **1422** and may also depend on the geometry of pivot plate **1422**.

FIG. **19** illustrates a top down view of an embodiment of sole structure **1210** for purposes of showing the approximate arrangement of first cleat assembly **1240** and second cleat assembly **1250**. In this case, covering member **1402** of first cleat assembly **1240** and covering member **1403** of second cleat assembly **1250** are visible on upper surface **1302** of sole structure **1210**. Additionally, in embodiments where covering members are partially transparent, actuating assembly **1420**, which includes actuating member **1430** and pivot plate **1422**, may be visible through covering member **1402**. Second cleat assembly **1250** can also include an actuating assembly **1920**, which may be similar to actuating assembly **1420**. In particular, actuating assembly **1920** can include pivot plate **1922** and actuating member **1930** that are visible through covering member **1403** in the current embodiment. Moreover, actuating assembly **1920** may be configured to transfer forces from covering member **1403** to cleat member **1252** (see FIG. **12**) in a similar manner to the way that actuating assembly **1420** transfers forces from covering member **1402** to cleat member **1242**.

Each cleat assembly can be associated with an axis that extends along a length of the cleat assembly and divides the cleat assembly into two approximately symmetric portions. For example, first cleat assembly **1240** may be associated with axis **1902** that extends along the longitudinal direction of first cleat assembly **1240** such that first cleat assembly **1240** is approximately symmetric about axis **1902** with respect to a lateral direction of first cleat assembly **1240**. Likewise, second cleat assembly **1250** may be associated with axis **1904** that extends along the longitudinal direction of second cleat assembly **1250** such that second cleat assembly **1250** is approximately symmetric about axis **1904** with respect to a lateral direction of second cleat assembly **1250**.

In some embodiments, axis **1902** and axis **1904** could be approximately aligned. For example, axis **1902** and axis **1904** could be approximately parallel. Such a configuration would comprise cleat assemblies that "point" in the same direction. In other embodiments, however, axis **1902** and axis **1904** may not be aligned. Instead, axis **1902** and axis **1904** could be disposed at an angle to one another. The angle between axis **1902** and axis **1904** could be measured with respect to the point of intersection between axis **1902** and axis **1904**.

In one embodiment, axis **1902** and axis **1904** intersect at intersection point **1910**. In different embodiments, the location of intersection point **1910** could vary. In some cases, intersection point **1910** could be located on sole structure **1210**. In other cases, intersection point **1910** could be located beyond sole structure **1210**. In one embodiment, intersection point **1910** is disposed adjacent to lateral edge **1926** of forefoot portion **20**.

Axis **1902** may be angled with respect to axis **1904**. In some cases, axis **1902** may be disposed at an angle **1912** with respect to axis **1904**. Generally, angle **1912** can have any value. In some cases, angle **1912** can have a value approximately in the range between 0 and 360 degrees. In other cases, angle **1912** can have a value approximately in the range between 0 and 180 degrees. In still other cases, angle **1912** can have a value approximately in the range between 0 and 90 degrees. In still other cases, angle **1912** can have a value approximately in the range between 10 and 80 degrees. In still other cases, angle **1912** can have a value approximately in the range between 30 and 60 degrees.

In some cases, the arrangement of first cleat assembly **1240** and second cleat assembly **1250** can have an approximately radial configuration. For example, in the current embodiment, first cleat assembly **1240** and second cleat assembly **1250** are aligned with axis **1902** and axis **1904** that extend approximately radially from intersection point **1910**. In other embodiments, however, the arrangement of first cleat assembly **1240** and second cleat assembly **1250** may not be radial and could have any other configuration.

Using the above arrangement, first cleat assembly **1240** and second cleat assembly **1250** may be positioned and oriented to achieve maximum cleat extension during various athletic maneuvers. For example, first cleat assembly **1240** is aligned in an approximately lateral direction with respect to sole structure **1210**. As the user makes a cutting motion and shifts weight to the medial side of sole structure **1210**, first cleat assembly **1240** may be oriented so that the direction of the weight shift near the ball of the foot corresponds to the direction of pivoting of actuating assembly **1420**. This helps ensure that the maximum amount of force is transferred to actuating assembly **1420** in order to extend cleat member **1242**. In contrast, second cleat assembly **1250** is aligned in a direction that is angled with respect to the lateral direction and longitudinal direction of sole structure **1210**. This is useful since a player may often lead off from lateral forward edge **1940** of sole structure **1210** during a first step, and therefore the orientation of actuating assembly **1920** is configured to maximize actuation as weight is transferred towards lateral forward edge **1940**.

While various embodiments have been described, the description is intended to be exemplary, rather than limiting and it will be apparent to those of ordinary skill in the art that many more embodiments and implementations are possible that are within the scope of the embodiments. Accordingly, the embodiments are not to be restricted except in light of the attached claims and their equivalents. Also, various modifications and changes may be made within the scope of the attached claims.

What is claimed is:

1. A sole structure for an article of footwear including a cleat assembly, comprising:

a cleat member including an extending portion, the extending portion having a first end fixed relative to the sole structure and a second end designed to move relative to the first end, wherein the extending portion is elastomeric;

an actuating assembly including a pivot plate and an actuating member;

the pivot plate including a first end portion and a second end portion;

the actuating member attached to the first end portion

the actuating member disposed within the extending portion and designed to elongate the extending portion by moving the second end of the extending portion away from the first end of the extending portion when force from a foot of a wearer actuates the actuating member; and

wherein the pivot plate is configured to pivot about the second end portion of the pivot plate to transfer the force from the foot of the wearer to the extending portion.

2. The sole structure according to claim **1**, wherein the cleat assembly further includes a housing and a base portion.

3. The sole structure according to claim **2**, wherein the extending portion is attached to the base portion.

4. The sole structure according to claim **1**, wherein the cleat member further includes a tip portion that is attached to the second end of the extending portion.

5. The sole structure according to claim **4**, wherein the tip portion includes a fastening portion and wherein the actuating member is fastened to the fastening portion.

6. The sole structure according to claim **5**, wherein the fastening portion includes threads and wherein the actuating member includes a threaded cavity for receiving the threads.

7. A sole structure for an article of footwear including a cleat assembly, comprising:

a cleat sub-assembly comprising a base portion and a cleat member attached to the base portion;

the base portion including a fulcrum;

the cleat member including an extending portion, the extending portion having a first end attached to the base portion and a second end designed to move relative to the first end, wherein the extending portion is elastomeric;

an actuating assembly including a pivot plate and an actuating member attached to the pivot plate;

the actuating member being disposed within the extending portion and positioned to transfer force from a foot of the wearer to a second end of the extending portion to elongate the extending portion; and

wherein the pivot plate pivots on the fulcrum.

8. The sole structure according to claim **7**, wherein the base portion includes a first end portion and a second end portion and wherein the first end portion includes a hole for receiving the cleat member.

9. The sole structure according to claim **8**, wherein the fulcrum extends from the hole to the second end portion of the base portion.

10. The sole structure according to claim **7**, wherein the pivot plate includes a first end portion and a second end portion and wherein the second end portion is disposed adjacent to the fulcrum.

11. The sole structure according to claim **10**, wherein the first end portion of the pivot plate is spaced apart from the base portion by a first distance when a force less than a predetermined force is applied to the cleat assembly.

12. The sole structure according to claim **11**, wherein the first end portion of the pivot plate is spaced apart from the base portion by a second distance that is less than the first distance when a force greater than the predetermined force is applied to the cleat assembly.

13. The sole structure according to claim **11**, wherein the pivot plate is configured to transfer any downward force to the actuating member.

14. The sole structure according to claim **7**, wherein the fulcrum comprises a ramp extending from the base portion.

15. A sole structure for an article of footwear including a cleat assembly, comprising:

an actuating assembly including a pivot plate and an actuating member, the pivot plate having a first end portion and a second end portion and wherein the actuating member is disposed adjacent to the first end portion;

a covering member including a first region and a second region, the first region disposed adjacent to the first end portion of the pivot plate and the second region disposed adjacent to the second end portion of the pivot plate;

a cleat sub-assembly including a base portion and a cleat member;

the base portion including a hole for receiving the cleat member and a fulcrum that is configured to contact the second end portion of the pivot plate;

the cleat member including an elastomeric extending portion, the extending portion having a first end fixed relative to the base portion and a second end designed to move relative to the first end;

the cleat member configured to receive the actuating member and wherein the cleat member can be extended away from the sole structure by the actuating member elongating the extending portion;

wherein the cleat assembly is configured to transfer force from the first region of the covering member to the actuating member and wherein the cleat assembly is configured to transfer force from the second region of the covering member to the actuating member.

16. The sole structure according to claim **15**, wherein the fulcrum includes a slot.

17. The sole structure according to claim **16**, wherein the pivot plate includes a rib that engages the slot.

18. The sole structure according to claim **15**, wherein the pivot plate is disposed at an angle to the fulcrum when a force less than a predetermined amount of force is applied to the covering member.

19. The sole structure according to claim **15**, wherein the pivot plate is approximately parallel with the fulcrum when a force greater than a predetermined force is applied to the covering member.

20. The sole structure according to claim **15**, wherein the cleat assembly is disposed in a forefoot portion of the sole structure.

21. The sole structure according to claim **15**, wherein the cleat assembly has a tear-drop shape.

22. The sole structure according to claim **15**, wherein the cleat assembly includes a housing for restraining the actuating assembly and wherein the housing includes a recessed portion that is configured to engage a portion of the pivot plate.

23. The sole structure according to claim **22**, wherein the recessed portion prevents further retraction of the cleat member by engaging the portion of the pivot plate and stopping the pivot plate from moving further in a direction towards a foot of a user.

24. A sole structure for an article of footwear, including:

a first cleat assembly and a second cleat assembly;

the first cleat assembly including a first actuating assembly and a first cleat member, wherein the first actuating assembly is designed to elongate a first elastomeric extending portion by displacing a first end of the first elastomeric extending portion away from a second end of the first elastomeric extending portion when a first force from a foot of a wearer actuates the first actuating assembly;

the second cleat assembly including a second actuating assembly and a second cleat member, wherein the second actuating assembly is designed to elongate a second elastomeric extending portion by displacing a first end of the second elastomeric extending portion away from a second end of the second elastomeric extending portion when a second force from the foot of the wearer actuates the second actuating assembly;

a first axis that is associated with a first length of the first cleat assembly;

a second axis that is associated with a second length of the second cleat assembly; and

wherein the first cleat assembly and the second cleat assembly are arranged on the sole structure so that the first axis is angled with respect to the second axis.

25. The sole structure according to claim **24**, wherein the first axis and the second axis form an angle in the range between 0 and 180 degrees.

26. The sole structure according to claim **24**, wherein the first axis and the second axis form an angle in the range between 10 and 80 degrees.

27. The sole structure according to claim **24**, wherein the first axis and the second axis form an angle in the range between 30 and 60 degrees.

28. The sole structure according to claim **24**, wherein the first cleat assembly and the second cleat assembly are disposed in a forefoot portion of the sole structure.

29. The sole structure according to claim **28**, wherein the first cleat assembly and the second cleat assembly are disposed on a medial side of the sole structure.

30. The sole structure according to claim **29**, wherein an intersection between the first axis and the second axis is disposed near a lateral side of the forefoot portion.

31. The sole structure according to claim **24**, wherein the first cleat assembly and the second cleat assembly are arranged in an approximately radial pattern.

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